

# **USER BEHAVIORAL ACCESS ELIMINATION IN E-COMMERCE APPLICATION -DATA MINING**

Submitted in partial fulfilment of the required for the award of

**Masters of Computer Science**

By

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**DEPARTMENT OF COMPUTER SCIENCE**

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**INSTITUTE OF SCIENCE AND TECHNOLOGY**

**(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade “A++” by NAAC**

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**APRIL 2024**



**SATHYABAMA  
INSTITUTE OF SCIENCE AND TECHNOLOGY  
(DEEMED TO BE UNIVERSITY)**

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**DEPARTMENT OF COMPUTER SCIENCE**

**BONAFIDE CERTIFICATE**

This is to certify that this Project Report is the bonafide work of **PLASIT PRIGHANS P (42734029)** who carried out the project entitled **"USER BEHAVIORAL ACCESS ELIMINATION IN E-COMMERCE APPLICATION-DATA MINING"** under our supervision from December 2023 to April 2024.

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Submitted for viva voce examination held on 20/04/2024

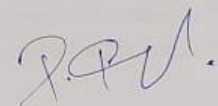
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### DECLARATION

I am, **PLASIT PRIGHANS P (42734029)** hereby declare that the Project Report entitled “**USER BEHAVIORAL ACCESS ELIMINATION IN E-COMMERCE APPLICATION -DATA MINING**” done by me under the guidance of **Dr. REKHA CHAKRAVARTHI M.E., Ph.D.**, Department of Computer Science at **SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY**, Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai-600119 is submitted in partial fulfilment of therequirements for the award of Master of Science degree in Computer Science.

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**PLASIT PRIGHANS P**

## **ABSTRACT**

Currently, many healthcare providers in primary health care use computerized information systems to a certain extent. However, the problem of heterogeneous information sources has impeded the integration of health care information within primary health facilities. How to facilitate information sharing among the different healthcare providers has been recognized as a growing area of significant importance

due to its role in enhancing patient centered, continuity of care. The proposed project is online doctor appointment system that provides patients or any user an easy way of booking a doctor's appointment online. This is an application project in web based that overcomes the issue of managing and booking appointments on automated time allotment system. The task sometimes becomes very tedious for the compounder or doctor himself in manually allotting appointments for the users as per their availability. Hence this project offers an effective solution where users can view various booking slots available and select the preferred date and time. This system is very much useful to save the patients timing and also easy to analyze the doctor availability. The patient can easily interact with doctor for their problem and get solutions from the doctor. Another advantage is that the doctor cans easily knowing the duty time and duration.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 CONSUMER MARKETING**

Marketing is the art that persuades and provides customer satisfaction which is transformed to customer delight. The traditional marketing approaches have been replaced by the advent of latest technology wherein the buyers and the sellers meet at a virtual market through World Wide Web. This trend of product exchange had reduced the influence of middlemen over sales thereby gaining profit to the business and satisfaction to the consumers. India is ranked second with 462, 124,989 internet users in the year June 2017 and ASSOCHAM report (7th January 2016) the high

internet penetration with high disposable income in tier II and tier III cities will lead approximately to 100 million transactions in 2020, in India which shows the rapid growth of internet.

Consumer Behavior is a field of study which grows rapidly. It is a wider concept that studies the reasons for the consumer in selecting the product which satisfies their need or want. The American Marketing Association defines Consumer Behavior as “the dynamic interaction of affect and cognition, behavior, and the environment by which human beings conduct the exchange aspects of their lives”. To succeed in a dynamic marketing environment, marketers have an urgent need to learn and anticipate whatever they can about consumers. The online shopping mode has facilitated the consumer to make the utmost product purchase with ease and anytime. The view about the product dimensions that induce the consumers to shop online is dealt in the study.

## **1.2 OBJECTIVES OF THE STUDY**

- To study the demographic and socio-economic profile of the respondents and the consumers.
- To find the awareness level of the Consumer towards Online Shopping Features.
- To analyze the influence of the product features over Consumer Behavior
- To avoid the add which are developed from analyzing the consumer behaviors

## **1.3 AVOIDANCE OF ADVERTISEMENTS**

Most previous studies of avoidance have been made within a single culture. However, the nature of advertising varies substantially between cultures due to

government regulation, self-regulation and “differences in information processing and communication style” (De Mooij, 2004: 216). In some countries, advertising is not allowed between websites. Our aim here is to investigate whether demographic and attitudinal explanations for avoidance can be marketing universals or whether, as indicated by the often conflicting results of research thus far, avoidance cannot be reliably predicted by such factors. Our objective is to test for demographic, country of residence and attitudinal effects in three different cultural contexts. Our approach was to establish views as to what each relationship should look like based upon prior work and to use this as a straw model when presenting our own results. The two main avoidance types, behavioral and mechanical, are predicted by one or more of four demographic variables (gender, age, education level and family size), and overall attitude towards advertising. Overall attitude towards advertising is in turn determined by whether its role is seen as positive or negative. We now describe the relevant previous research on the effects of each variable.

#### **1.4 ONLINE USER BEHAVIOUR**

Online user behavior analysis studies how and why users of e-commerce platforms and web applications behave. It has been widely applied in practice, especially in commercial environments, political campaigns, and web application development. Data aggregation is one of the most critical operations in behavior analysis. Nowadays, the aggregation tasks for user data are outsourced to third-party data aggregators including Google Analytics, comScore, Quantcast, and StatCounter. While this tracking scheme brings great benefits to analysts and aggregators, it also raises serious concerns about disclosure of users’ privacy. Aggregators hold detailed data of users’ online behaviors, from which demographics can be easily inferred to protect users’ privacy, government and industry regulations were established, Do-

Not-Track [7], which significantly restricts the analysis of users' online behaviors [4]. To address the conflict between the utility of analysis results and users' privacy, much effort has been devoted to designing protocols that allow operations on user data while still protecting users' privacy. Unfortunately, existing schemes guarantee strong privacy at the expense of limitations on analysis. Most of them can only compute summation and mean of data over all users without filter or selection, i.e., overall aggregation. Some previous methods allow more complex computation. However, selective aggregation is one of the most important operations for queries on databases. It can be used to tell the difference among different user groups in a certain aspect. For instance, "select avg(income) from database group by gender".

## **1.5 PROJECT DESCRIPTION**

The main goal of this paper is to design a practical protocol that is able to compute selective aggregation of user data while still preserving users' privacy. There are mainly three challenges. First, the untrusted intermediary needs to evaluate selective aggregation obviously. It cannot access user data for privacy concerns, but we hope it does computations to achieve selection and aggregation on user data. We exploit homomorphic cryptosystem to address this challenge, but so far it does not directly support data selection. Second, our scheme PPSA needs to achieve differential privacy in a homomorphic cryptosystem. To protect individuals' privacy, we need to obviously add noise to aggregate results in addition to encrypting user data. Existing differential privacy mechanism generates noise from real numbers, but homomorphic cryptosystems require plaintexts to be integers. Simply scaling real numbers to integers would cause inaccuracy and inconvenience. Thus, we need to resolve this conflict. Third, PPSA should be resistant to client churn, the situation where clients switch between online and offline frequently. When an analyst issues a query, there could be few users connected, which means few data can be collected

to evaluate the query. But the analyst wants the intermediary to respond to her as soon as possible. Thus, our protocol needs to tolerate client churn and evaluate the query both timely and accurately.

To address these challenges, we design a scheme PPSA (Privacy-Preserving Selective Aggregation). In general, our contributions can be summarized as follows:

- We present the first scheme PPSA that allows privacy-preserving selective aggregation on user data, which plays a critical role in online user behavior analysis.
- We combine homomorphic encryption and differential privacy mechanism to protect users' sensitive information from both analysts and aggregation service providers, and protect individuals' privacy from being inferred.
- We prove that differential privacy can be achieved by adding two Geometric variables, which is computed via homomorphism encryption. Furthermore, we present a privacy analysis of PPSA.
- We extend PPSA to two more scenarios to fully support more complex selective aggregation of user

## **1.6. EXISTING SYSTEM**

Frequent item sets mining with differential privacy refer to the issue of mining all visit item sets whose supports are over a given edge in a given transactional dataset, with the imperative that the mined comes about ought to not break the security of any single exchange. Current solutions for this issue cannot well adjust proficiency, security and data utility over expansive scaled information. Toward this conclusion, we propose an efficient, differential private visit item sets mining

algorithm over huge scale information. Based on the thoughts of testing and transaction truncation utilizing length imperatives, our algorithm reduces the computation concentrated, diminishes mining sensitivity, and hence makes strides information utility given a settled security budget. Experimental comes about appear that our calculation accomplishes better performance than earlier approaches on numerous datasets.

- The system makes a recommendation interface but the user behavior will be detected
- The security is not enhanced

## **1.7. PROPOSED SYSTEM**

Growing efforts have been devoted to mining the abundant behavior data to extract valuable information for research purposes or business interests. However, online users' privacy is thus under the risk of being exposed to third-parties. The last decade has witnessed a body of research works trying to perform data aggregation in a privacy-preserving way. Most of existing methods guarantee strong privacy protection yet at the cost of very limited aggregation operations, such as allowing only summation, which hardly satisfies the need of behavior analysis. . In this paper, we propose a scheme PPSA and ECC, which encrypts users' sensitive data to prevent privacy disclosure from both outside analysts and the aggregation service provider, and fully supports selective aggregate functions for online user behavior analysis while guaranteeing differential privacy. We have implemented our method and evaluated its performance using a trace-driven evaluation based on a real online behavior dataset. Experiment results show that our scheme effectively supports both overall aggregate queries and various selective aggregate queries with acceptable computation and communication overheads.

- The user privacy on the data mining pattern will be achieved up to 94%.
- Thus the unwanted add will be blocked from the website user's side.
- The search count can only be aggregated by the aggregator and provide to the analyst.

## **CHAPTER 2**

### **LITERATURE SURVEY**

**2.1. TITLE: PERSONALIZATION OF WEB SEARCH BASED ON PRIVACY PROTECTED AND AUTO-CONSTRUCTED USER PROFILE AUTHOR: Rasika M. Kaingade ; Hemant A. Tirmare | June-2013**

#### **DESCRIPTION**

Web search engines are widely used to find huge amount of data on the web in a minimum amount of time. But sometimes it becomes difficult to the users to get exact result for given query. Personalized Web Search (PWS) provides the better search results for individual user needs and improves the quality of the search result based on the user profile. However, user's unwillingness to disclose their private information during search has become major issue in wide increase in PWS. This paper presents a scalable way for users to build rich hierarchical user profiles automatically and provide privacy for the user profiles. Extended User customizable Privacy-preserving Search (E-UPS) framework generalize the user profiles for each query according to user-specified privacy requirements. It will improve the search quality and hide the privacy contents existence in the user profile and gives protection against a typical model of privacy attack.

## **2.2 .TITLE: BIG DATA TECHNOLOGY AND ETHICS CONSIDERATIONS IN CUSTOMER BEHAVIOR AND CUSTOMER FEEDBACK MINING**

**AUTHOR: Xin Deng | March-2015**

### **DESCRIPTION**

The rapidly increasing attention to customer behavior and satisfaction by department stores and commercial companies and development in social media as well as online systems has promoted production and research in user engagement pattern recognition, user network analysis, topic detection from customer feedback, text-based sentiment analysis, etc. With the development of Internet of Things and social media network, ethics consideration has also playing an important role in application of big data, especially customer behavior and feedback mining. Our proposed novel system, which extracts the important topics or issues from Skype customer feedback sources and measures the emotion associated with those topics using Vibe metric, can be a good example in this area. Unlike other previous research, which has focused on extracting the user sentiments either globally or in separate topics, our work focuses on tracking the correlated emotional trajectories across all the important issues from Skype customer feedback over time. Moreover, it also provides a platform for both studying customer emotions and tracking how the emotions regarding different important topics correlatively change over time by leveraging unstructured textual customer feedback data and structured user activity telemetry data.

## **2.3. TITLE: AD BLOCKING AND COUNTER-AD BLOCKING AD BLOCKING AND COUNTER-AD BLOCKING: ANALYSIS OF ONLINE AD BLOCKER USAGE AUTHOR: Shuai Zhao | March 2016**

## **DESCRIPTION**

Compared with online advertising industry, there is an even faster increase of ad blocker usage, which influence badly on publishers' and advertisers' business which customers choose to either disable their ad blockers or leave without seeing the content. There are also companies which abandon their counter-ad blocking strategies after conducting them for a while due to insufficient understanding of users' ad blocking behavior. In this study, we employed a quasi-experiment framework and collected a large-size data with the cooperation with Forbes Media. We aim to identify factors influencing ad blocker usage. Furthermore, we will model the interaction effects among user profile, online behavior patterns, device features on ad blocker usage propensity. Our study contributes the literature of understanding ad blocker usage by evaluating those principles using big amount of real-world data.

### **2.4. TITLE: PERSONALIZED SEARCH ENGINES ON MINING USER PREFERENCES USING CLICKTHROUGH DATA**

**AUTHOR: S. Preetha | June-2013**

## **DESCRIPTION**

In a web based application, different users may have different search goals when they submit it to a search engine. For a broad-topic and ambiguous query it is difficult. Here we propose a novel approach to infer user search goals by analyzing search engine query logs. A major deficiency of generic search engines is that they follow the “one size fits all” model and are not adaptable to individual users. This is typically shown in cases such as these: Different users have different backgrounds and interests. However, effective personalization cannot be achieved without accurate user profiles. We address the problem of learning the user profile within the

user's ongoing behaviors by using the user search. We propose a framework that enables large-scale evaluation of personalized search. User interest is employed in the clustering process to achieve personalization effect. The goal of personalized IR First, we propose a framework to discover different user search goals for a query by clustering the proposed feedback sessions. Feedback sessions are get constructed from user click-through logs and can efficiently reflect the information needs of users. Second, we propose an approach to generate pseudo-documents to better represent the feedback sessions for clustering. Most document-based methods focus on analyzing users' clicking and browsing behaviors recorded at the users' clickthrough data. In the Web search engines, clickthrough data are important implicit feedback mechanism from users. An example of clickthrough data for the query "apple," which contains a list of ranked search results presented to the user, which contains identification on the results that was previously clicked by the user. The bolded documents that have been clicked by the user have been ranked. Several personalized systems that employ clickthrough data to capture users' interest have been proposed.

## **2.5. TITLE: USER BEHAVIOR MINING ON LARGE SCALE WEB LOG DATA**

**AUTHOR: Shun-Hua Tan ; Miao Chen | August-2013**

### **DESCRIPTION**

In this paper we propose a web log mining-based network user behavior analysis scheme, which plays an important role in network structure optimization and website server configuration. Based on clustering and regression model, we studied the network user's visit model in a university by analyzing a large amount of web log data which is collected from the university campus network. The data analyzing software was developed by VC and SQL Server 2000.

**2.6. TITLE: USER BEHAVIOR ANALYSIS OF AUTOMOBILE WEBSITES  
BASED ON DISTRIBUTED COMPUTING AND SEQUENTIAL PATTERN  
MINING AUTHOR: Yuanying | Jan-2017**

**DESCRIPTION**

Nowadays Internet user behavior becomes more and more complicated due to application diversity. It is important to analyze user behavior on specific websites such as e-commerce, education, and healthcare in order for personalized recommendation or targeted advertisement. In this paper, based on the large-scale traffic flow data of real network and crawling data from websites, we focus on the analysis of user browsing behavior on automobile websites. First of all, data pre-processing and statistical analysis based on MapReduce framework are designed and implemented, which is mainly to transform the flow data type to sequential dataset. By improving regular expressions matching method in distributed computing, the running time is reduced from  $O(N)$  to  $O(1)$ . Secondly, we apply the sequential pattern mining algorithm AprioriAll to analyze the sequential dataset. The analysis result reflects the preference of the users when browsing automobile websites to acquire their wanted information.

**2.7. TITLE: USER BEHAVIORS ANALYSIS IN  
WEBSITE IDENTIFICATION REGISTRATION AUTHOR: Tong Gan ;  
Fuhong Lin ; Changjia Chen ; Yuchun Guo ; Yi Zheng DESCRIPTION**

Nowadays, an increasing number of web applications require identification registration. However, the behavior of website registration has not ever been thoroughly studied. We use the database provided by the Chinese Software Develop Net (CSDN) to provide a complete perspective on this research point. We concentrate on the following three aspects: complexity, correlation, and preference. From these

analyses, we draw the following conclusions: firstly, a considerable number of users have not realized the importance of identification and are using very simple identifications that can be attacked very easily. Secondly, there is a strong complexity correlation among the three parts of identification. Thirdly, the top three passwords that users like are 123456789, 12345678 and 11111111, and the top three email providers that they prefer are NETEASE, qq and sina. Further, we provide some suggestions to improve the quality of user passwords.

## **2.8 . TITLE: TECHNICAL AND SOCIAL REASONS FOR BLOCKING WEB ADVERTISING IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT OF E-BUSINESS**

**AUTHOR: Edyta Abramek | 2018**

### **DESCRIPTION**

The article focuses on the complex problem of synergy of the expectations of recipients of web content - users with the expectations of content creators – publishers, who make them available free of charge but at the same time complement them with web advertisements. The article presents the results of author's research of users' reasons to block web advertisements through special adblock programs, thus condemning publishers' in e-business to failure. The results of empirical research prove that users do not interfere with advertising sensu stricto, but the way of solutions, models or information systems for sustainable development in the area of e-business, in particular in the area of e-marketing

## **2.9. TITLE: THE EFFECT OF AD BLOCKING ON USER ENGAGEMENT WITH THE WEB**

**AUTHOR: Ben Miroglio | April-2019**

## **DESCRIPTION**

Web users are increasingly turning to ad blockers to avoid ads, which are often perceived as annoying or an invasion of privacy. While there has been significant research into the factors driving ad blocker adoption and the detrimental effect to ad publishers on the Web, the resulting effects of ad blocker usage on Web users' browsing experience is not well understood. To approach this problem, we conduct a retrospective natural field experiment using Firefox browser usage data, with the goal of estimating the effect of adblocking on user engagement with the Web. We focus on new users who installed an ad blocker after a baseline observation period, to avoid comparing different populations. Their subsequent browser activity is compared against that of a control group, whose members do not use ad blockers, over a corresponding observation period, controlling for prior baseline usage. In order to estimate causal effects, we employ propensity score matching on a number of other features recorded during the baseline period. In the group that installed an ad blocker, we find significant increases in both active time spent in the browser (+28% over control) and the number of pages viewed (+15% over control), while seeing no change in the number of searches. Additionally, by reapplying the same methodology to other popular Firefox browser extensions, we show that these effects are specific to ad blockers. We conclude that ad blocking has a positive impact on user engagement with the Web, suggesting that any costs of using ad blockers to users' browsing experience are largely drowned out by the utility that they offer

### **2.10. TITLE: ADBLOCKING AND COUNTER-BLOCKING: A SLICE OF THE ARMS RACE**

**AUTHOR: Rishab Nithyanand | June-2020**

## **DESCRIPTION**

Adblocking tools like Adblock Plus continue to rise in popularity, potentially threatening the dynamics of advertising revenue streams. In response, a number of publishers have ramped up efforts to develop and deploy mechanisms for detecting and/or counter-blocking adblockers (which we refer to as anti-adblockers), effectively escalating the online advertising arms race. In this paper, we develop a scalable approach for identifying third-party services shared across multiple websites and use it to provide a first characterization of antiadblocking across the Alexa Top-5K websites. We map websites that perform anti-adblocking as well as the entities that provide anti-adblocking scripts. We study the modus operandi of these scripts and their impact on popular adblockers. We find that at least 6.7% of websites in the Alexa Top-5K use anti-adblocking scripts, acquired from 12 distinct entities – some of which have a direct interest in nourishing the online advertising industry.

## **CHAPTER 3**

### **SYSTEM DESIGN**

#### **3.1 UML DIAGRAMS**

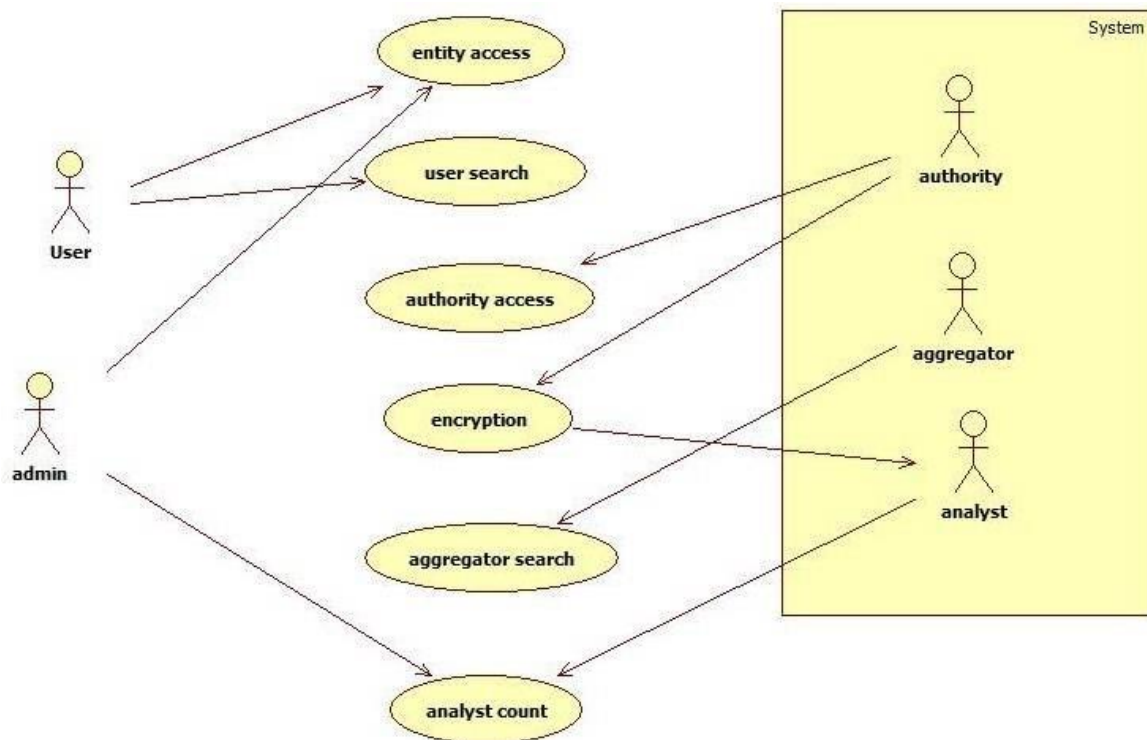
A UML diagram is a diagram based on the UML (Unified Modeling Language) with the purpose of visually representing a system along with its main actors, roles, actions, artifacts or classes, in order to better understand, alter, maintain, or document information about the system.

- Use case diagram
- Class diagram
- Sequence Diagram

- Activity Diagram

### **3.1.1 Use case Diagram**

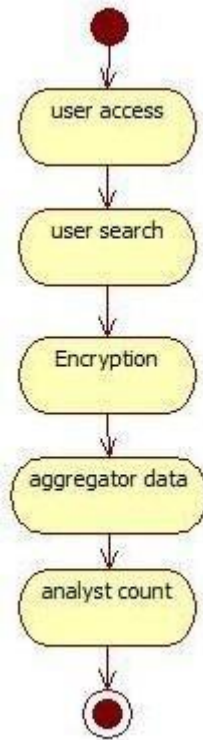
Use case diagrams are usually referred to as behavior diagrams used to describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors). In software and systems engineering, a use case is a list of actions or event steps typically defining the interactions between a role (known in the Unified Modeling Language as an actor) and a system to achieve a goal. The actor can be a human or other external system. An actor in the Unified Modeling Language (UML) "specifies a role played by a user or any other system that interacts with the subject." "An Actor models a type of role played by an entity that interacts with the subject (e.g., by exchanging signals and data), but which is external to the subject." UML Use Case Include. Use case include is a directed relationship between two use cases which is used to show that behavior of the included use case (the addition) is inserted into the behavior of the including (the base) use case.



**Fig 3.1 Use case diagram**

### 3.1.2 Activity Diagram

We use Activity Diagrams to illustrate the flow of control in a system and refer to the steps involved in the execution of a use case. We model sequential and concurrent activities using activity diagrams. So, we basically depict workflows visually using an activity diagram. An activity diagram focuses on condition of flow and the sequence in which it happens. We describe or depict what causes a particular event using an activity diagram. UML models basically three types of diagrams, namely, structure diagrams, interaction diagrams, and behavior diagrams. An activity diagram is a behavioral diagram i.e. it depicts the behavior of a system

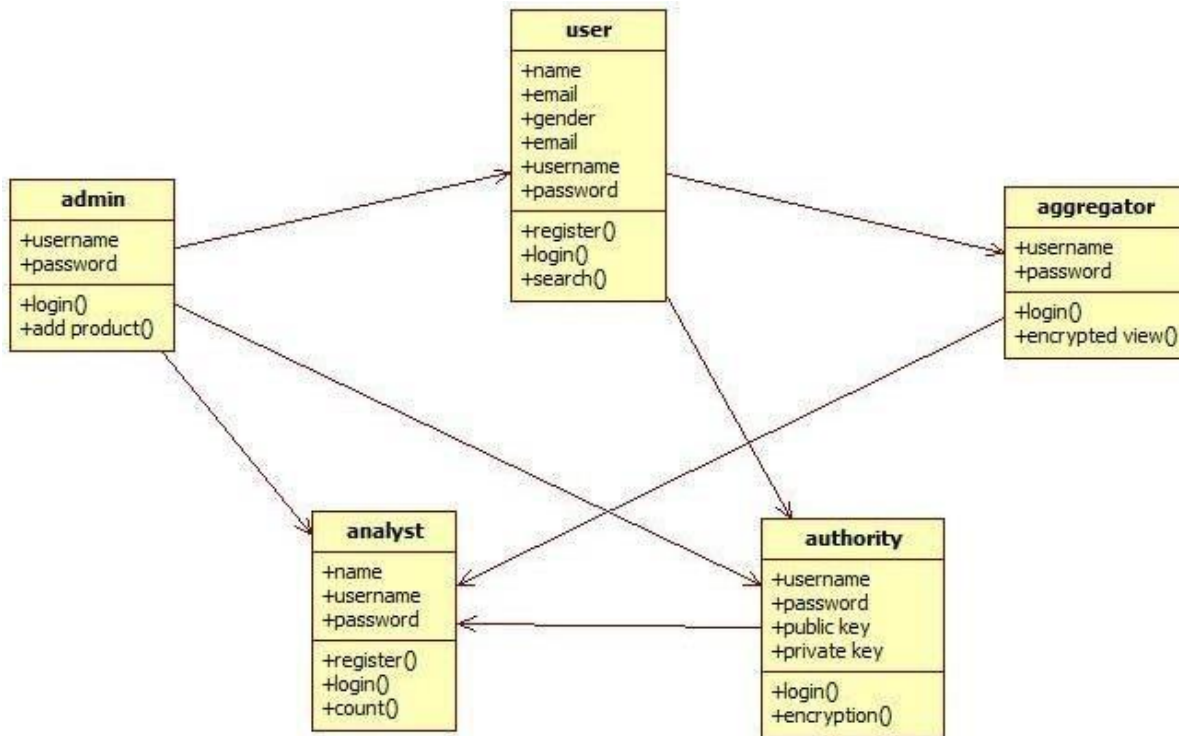


**Fig 3.2 Activity Diagram**

### **3.1.3 Class Diagram**

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects. The class diagram is the main building block of object-oriented modeling. It is used for general conceptual modeling of the structure of the application, and for detailed modeling translating the models into programming code. Class diagrams can also be used for data modeling.[1] The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed. In the diagram, classes are represented with boxes that contain three compartments: The top compartment contains the name of the class. It

is printed in bold and centered, and the first letter is capitalized. The middle compartment contains the attributes of the class. They are left-aligned and the first letter is lowercase. The bottom compartment contains the operations the class can execute. They are also left-aligned and the first letter is lowercase.

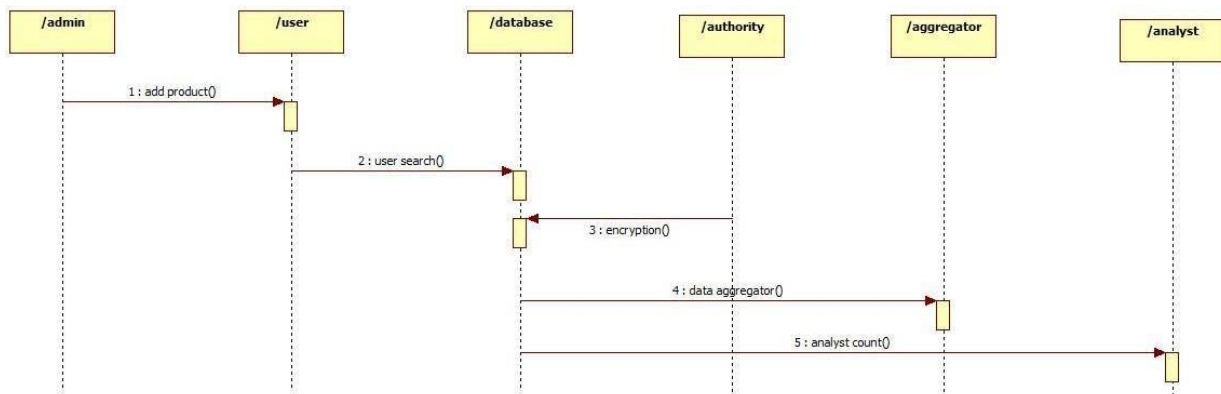


**Fig 3.3 Class diagram**

### 3.1.4 Sequence Diagram

Sequence diagrams are sometimes called event diagrams or event scenarios. A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. A sequence diagram is an interaction diagram that shows how objects operate with one another and in what order. It is a construct of a message sequence chart. A sequence diagram shows object

interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios. Objects as well as classes can be targets on a sequence diagram, which means that messages can be sent to them. A target is displayed as a rectangle with some text in it. Below the target, its lifeline extends for as long as the target exists. The lifeline is displayed as a vertical dashed line.

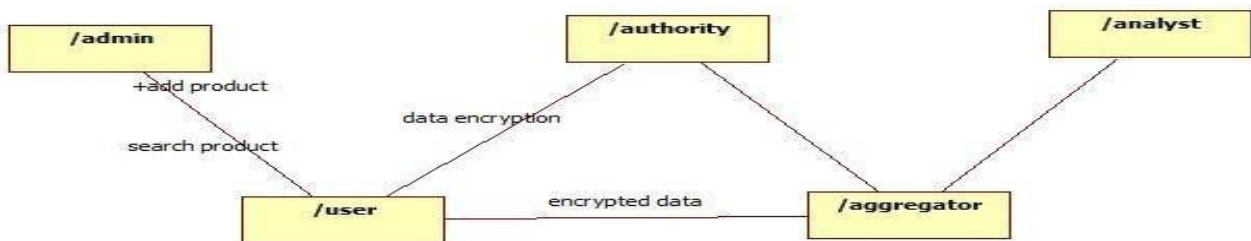


**Fig 3.4 Sequence diagram**

### **3.1.5.Collaboration Diagram**

Collaboration diagrams (known as Communication Diagram in UML 2.x) are used to show how objects interact to perform the behavior of a particular use case, or a part of a use case. Along with sequence diagrams, collaboration is used by designers to define and clarify the roles of the objects that perform a particular flow of events of a use case. They are the primary source of information used to determining class responsibilities and interfaces.

- Collaboration is a collection of named objects and actors with links connecting them. They collaborate in performing some task.
- A Collaboration defines a set of participants and relationships that are meaningful for a given set of purposes
- A Collaboration between objects working together provides emergent desirable functionalities in Object-Oriented systems
- Each object (responsibility) partially supports emergent functionalities
- Objects are able to produce (usable) high-level functionalities by working together
- Objects collaborate by communicating (passing messages) with one another in order to work together



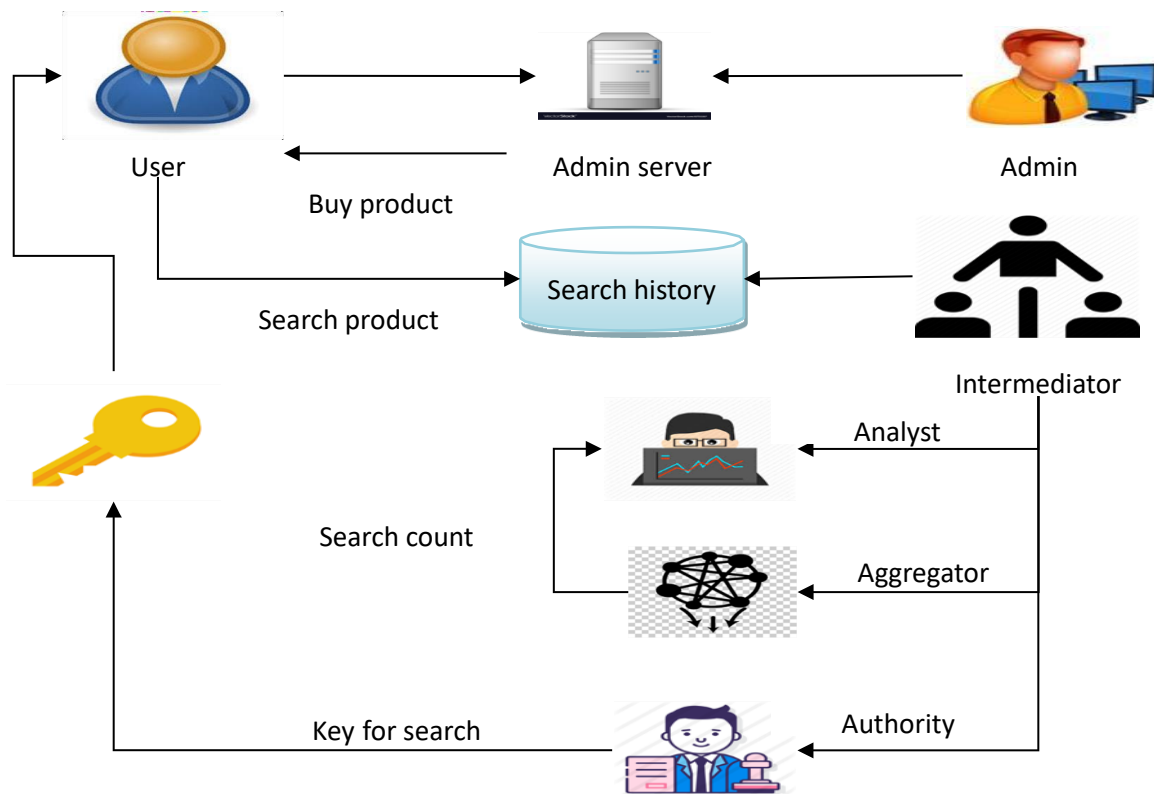
**Fig 3.5 Collaboration Diagram**  
**CHAPTER 4**

## **SYSTEM ARCHITECTURE**

A system architecture or systems architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system. System architecture can comprise system components, the externally visible properties of those components, the relationships (e.g. the behavior) between them. It can provide a plan from which products can be procured, and systems developed, that will work together to implement the overall system. There have been efforts to formalize languages to describe system architecture; collectively these are called architecture description languages (ADLs).

### **Various organizations define systems architecture in different ways, including:**

- An allocated arrangement of physical elements which provides the design solution for a consumer product or life-cycle process intended to satisfy the requirements of the functional architecture and the requirements baseline.
- Architecture comprises the most important, pervasive, top-level, strategic inventions, decisions, and their associated rationales about the overall structure (i.e., essential elements and their relationships) and associated characteristics and behavior.
- If documented, it may include information such as a detailed inventory of current hardware, software and networking capabilities; a description of long-range plans and priorities for future purchases, and a plan for upgrading and/or replacing dated equipment and software.



**Fig 5.1 Architectural diagram of truth discovery over twitter**  
 The system architecture deals with the user behavior privacy from the search history with the aggregator. Here the intermediate will be the one where the data

about the user are aggregated to the analyst. Thus the ECC encryption is used to protect the sensitive data from the database. Here the data can be uploaded by the user and they are protected from the analyst. The counts can only be used to know about the data.

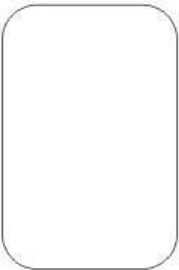
## CHAPTER 5

### SYSTEM IMPLEMENTATION

#### 5.1 DATA FLOW DIAGRAM

A two-dimensional diagram explains how data is processed and transferred in a system. The graphical depiction identifies each source of data and how it interacts with other data sources to reach a common output. Individuals seeking to draft a data flow diagram must identify external inputs and outputs, determine how the inputs and outputs relate to each other, and explain with graphics how these connections relate and what they result in. This type of diagram helps business development and design teams visualize how data is processed and identify or improve certain aspects.

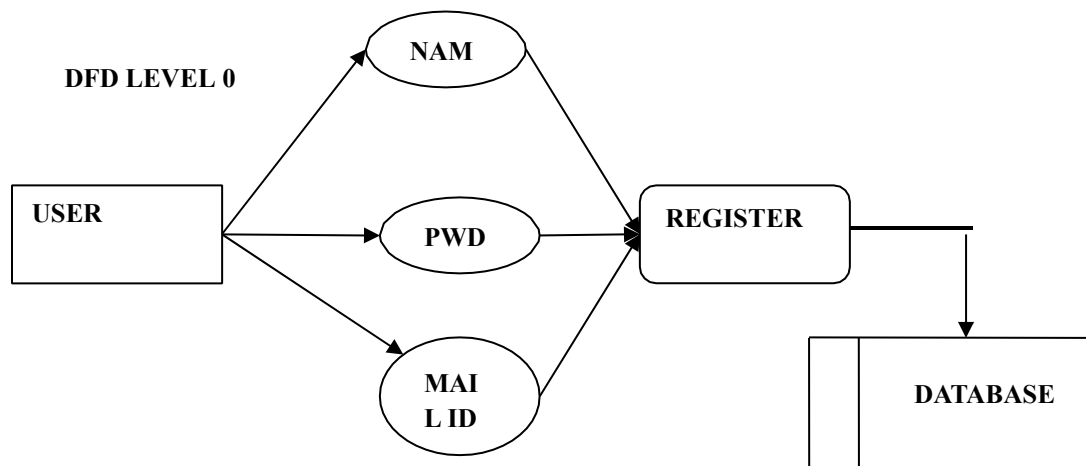
##### Data flow Symbols

| Symbol                                                                              | Description                                                    |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------|
|  | An <b>entity</b> . A source of data or a destination for data. |
|  | A <b>process</b> or task that is performed by the system.      |

|                                                                                   |                                                                     |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|
|  | A <b>data store</b> , a place where data is held between processes. |
|  | A <b>data flow</b> .                                                |

## LEVEL 0

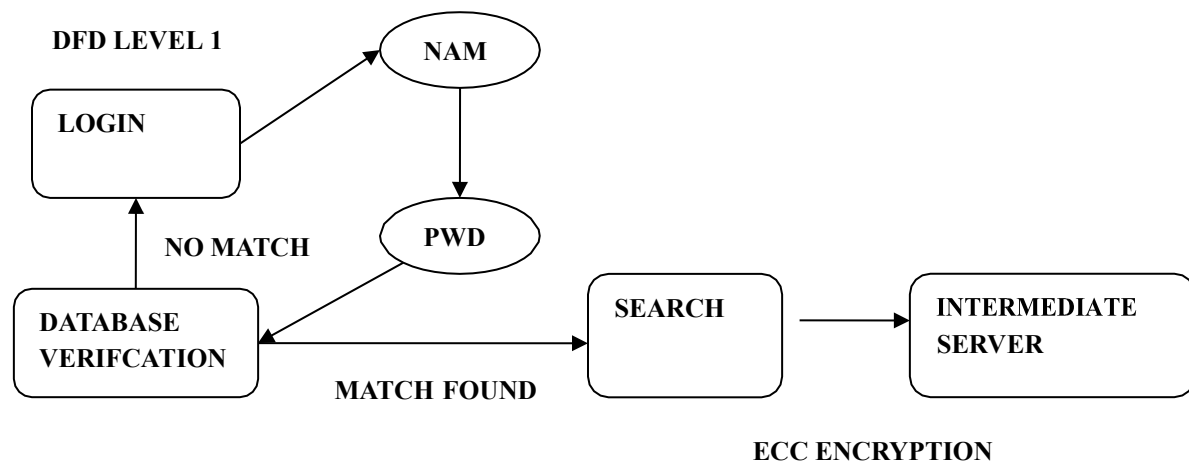
DFD Level 0 is also called a Context Diagram. It's a basic overview of the whole system or process being analyzed or modeled. It's designed to be an at-a-glance view, showing the system as a single high-level process, with its relationship to external entities. It should be easily understood by a wide audience, including stakeholders, business analysts, data analysts and developers.



**Fig 5.1 level 0 DFD**

## LEVEL 1

DFD Level 1 provides a more detailed breakout of pieces of the Context Level Diagram. You will highlight the main functions carried out by the system, as you break down the high-level process of the Context Diagram into its sub – processes. A level 1 data flow diagram (DFD) is more detailed than a level 0 DFD but not as detailed as a level 2 DFD. It breaks down the main processes into sub processes that can then be analyzed and improved on a more intimate level.



**Fig 5.2 Level 1 DFD**

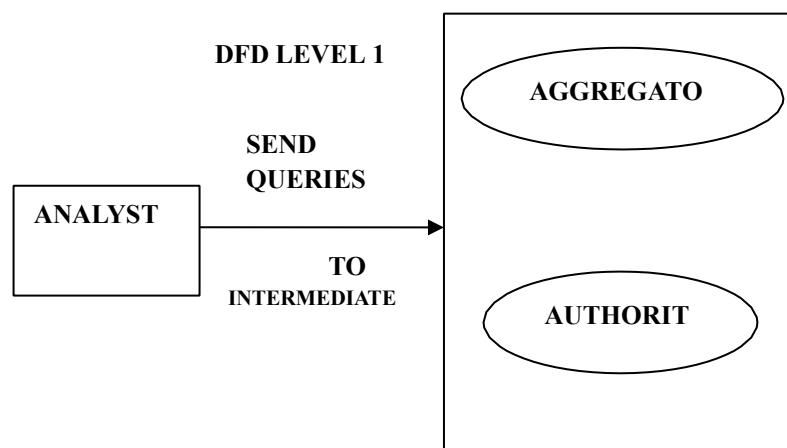


Fig 5.3 Level 2 DFD

## 5.2 DATA DICTIONARY Add

### Product

| Field    | Type         | Description             | Sample Data |
|----------|--------------|-------------------------|-------------|
| id       | int(11)      | Id of the product       | 101         |
| product  | varchar(100) | Product name            | Watch       |
| ptype    | varchar(100) | Product type            | Electronics |
| brand    | varchar(100) | Brand of the product    | Timex       |
| model    | varchar(100) | Model of the product    | ES112       |
| price    | varchar(100) | Price of the product    | 500         |
| quantity | int(11)      | Quantity of the product | 50          |
| image    | varchar(100) | Image of the product    | Image.jpg   |
| count    | varchar(100) | Count of the product    | 2           |

### Admin Table

| Field    | Type         | Description | Sample Data |
|----------|--------------|-------------|-------------|
| utype    | varchar(100) | User type   | admin       |
| username | varchar(100) | Username    | Admin       |
| password | varchar(100) | password    | Admin       |

### Analyst Register

| Field   | Type         | Description                 | Sample Data                                        |
|---------|--------------|-----------------------------|----------------------------------------------------|
| id      | int(11)      | Id of the analyst           | 11                                                 |
| name    | varchar(100) | Name of the analyst         | Rose                                               |
| contact | bigint(20)   | Contact of the analyst      | 7485961230                                         |
| email   | varchar(100) | Email of the analyst        | <a href="mailto:rose@gmail.com">rose@gmail.com</a> |
| otp     | int(11)      | OTP received to the analyst | 7485                                               |

### Register Table

| Field   | Type         | Description                | Sample Data                                        |
|---------|--------------|----------------------------|----------------------------------------------------|
| id      | int(11)      | Id of the user             | 11                                                 |
| name    | varchar(100) | Name of the user           | Rose                                               |
| contact | bigint(20)   | Contact number of the user | 7485961230                                         |
| email   | varchar(100) | Email of the user          | <a href="mailto:rose@gmail.com">rose@gmail.com</a> |
| gender  | varchar(100) | Gender of the user         | Female                                             |
| age     | int(11)      | Age of the user            | 24                                                 |
| address | varchar(100) | Address of the user        | Trichy                                             |

|       |              |                      |      |
|-------|--------------|----------------------|------|
| uname | varchar(100) | Username of the user | Rose |
| pass  | varchar(100) | Password of the user | 123  |

### Search Count

| Field       | Type         | Description           | Sample Data |
|-------------|--------------|-----------------------|-------------|
| id          | int(11)      | Id of the count       | 23          |
| uname       | varchar(100) | Username who search   | Rose        |
| product     | varchar(100) | Product name          | Watch       |
| public_key  | varchar(100) | Public key generated  | Hdfhagf4    |
| private_key | varchar(100) | Private key generated | Dsdf51a     |
| encrypted   | varchar(100) | Encrypted data        | Jhagt7ftb   |

## 5.3 TABLE DESIGN Add

### Product

| Field   | Type         | Null | Default     |
|---------|--------------|------|-------------|
| id      | int(11)      | Yes  | Primary key |
| product | varchar(100) | Yes  | Foreign key |
| ptype   | varchar(100) | Yes  | NULL        |
| brand   | varchar(100) | Yes  | NULL        |
| model   | varchar(100) | Yes  | NULL        |
| price   | varchar(100) | Yes  | NULL        |

|          |              |     |      |
|----------|--------------|-----|------|
| quantity | int(11)      | Yes | NULL |
| image    | varchar(100) | Yes | NULL |
| uname    | varchar(100) | Yes | NULL |
| count    | varchar(100) | Yes | NULL |
| rdate    | varchar(100) | Yes | NULL |

### **Admin Table**

| <b>Field</b> | <b>Type</b>  | <b>Null</b> | <b>Default</b> |
|--------------|--------------|-------------|----------------|
| utype        | varchar(100) | Yes         | Primary Key    |
| username     | varchar(100) | Yes         | NULL           |
| password     | varchar(100) | Yes         | NULL           |

### **Analyst Register**

| <b>Field</b> | <b>Type</b>  | <b>Null</b> | <b>Default</b> |
|--------------|--------------|-------------|----------------|
| id           | int(11)      | Yes         | Primary key    |
| name         | varchar(100) | Yes         | NULL           |
| contact      | bigint(20)   | Yes         | NULL           |
| email        | varchar(100) | Yes         | NULL           |
| otp          | int(11)      | Yes         | NULL           |

## Register Table

| Field   | Type         | Null | Default     |
|---------|--------------|------|-------------|
| id      | int(11)      | Yes  | Primary key |
| name    | varchar(100) | Yes  | Foreign key |
| contact | bigint(20)   | Yes  | NULL        |
| email   | varchar(100) | Yes  | NULL        |
| gender  | varchar(100) | Yes  | NULL        |
| age     | int(11)      | Yes  | NULL        |
| address | varchar(100) | Yes  | NULL        |
| uname   | varchar(100) | Yes  | NULL        |
| pass    | varchar(100) | Yes  | NULL        |
| rdate   | varchar(100) | Yes  | NULL        |

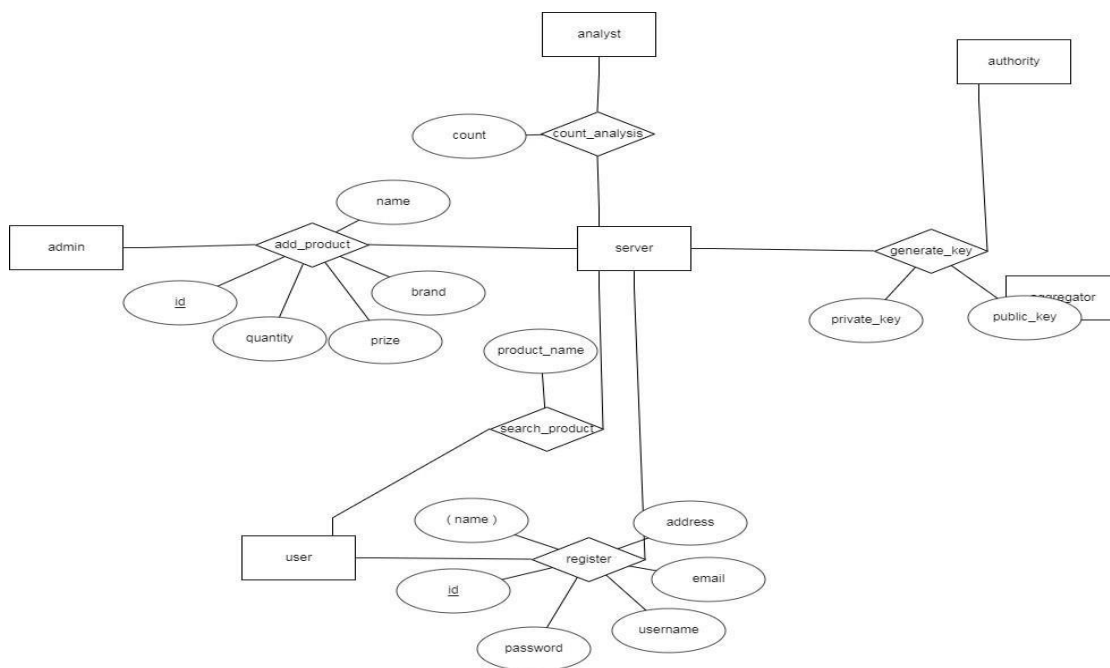
## Search Count

| Field      | Type         | Null | Default     |
|------------|--------------|------|-------------|
| id         | int(11)      | Yes  | Primary Key |
| uname      | varchar(100) | Yes  | Foreign key |
| product    | varchar(100) | Yes  | NULL        |
| public_key | varchar(100) | Yes  | Primary key |

|             |              |     |             |
|-------------|--------------|-----|-------------|
| private_key | varchar(100) | Yes | Primary key |
| encrypted   | varchar(100) | Yes | NULL        |
| status      | varchar(100) | Yes | NULL        |

## 5.4. ER DIAGRAM

An entity relationship diagram (ERD), also known as an entity relationship model, is a graphical representation that depicts relationships among people, objects, places, concepts or events within an information technology (IT) system.



**Fig 4.2 ER Diagram**

## 5.4 MODULE DESCRIPTION

- User register and login
- User Search

- Key Generation
- Search encryption
- Search count

### **Entity register and login**

Here the entities are user, admin and intermediate where they will be the main users. The intermediate will be of three people authority, aggregator and the analyst. Here the analyst work is to get the count of the product searched. Here the data will be stored with the efficient storage procedures with the entity access with registration. Aggregator aggregates and views the data. Authority secures the data and the admin is the super user of each websites such that the user data are get stored.

### **User Search**

Usually user buys the product with the online E- commerce websites. The product searched data are get stored in the database where extracting data from the data storage. The user behavior analysis is made here where the needs of the user are get known using the data searched. Here the user search can be serious problem since their behaviors are misused by the other website owners by the deceiving advertisements. Here the searched online data privacy is added for the user data with the privacy preserving scheme for the aggregators.

### **Key Generation**

The intermediary, comprised of an aggregator and an authority, bridges clients and analysts. They are in charge of aggregating user data from clients and responding to queries of analysts. They provide both functionality and security. Clients are installed on the user side. They can be bundled with users' software that requires

private analytics. Thus, it is reasonable to assume clients are trusted. A client collects a user's data, detects and removes outliers. Once the user gets online, the client sends encrypted data to the intermediary. Clients are not involved in the process of statistical aggregation. Here the data encryption is added using the ECC based encryption technology.

### **ECC Encryption:**

Elliptic-curve cryptography is an approach to public-key cryptography based on the algebraic structure of elliptic curves over finite fields. ECC requires smaller keys compared to non-EC cryptography to provide equivalent security

### **Algorithm**

I assume that those who are going through this article will have a basic understanding of cryptography (terms like encryption and decryption). The equation of an elliptic curve is given as,

$$K=E(n)+P \quad (6.1)$$

E -> Elliptic Curve

P -> Point on the curve

n -> Maximum limit ( This should be a prime number )

Key generation is an important part where we have to generate both public key and private key. The sender will be encrypting the message with receiver's public key and the receiver will decrypt its private key. Now, we have to select a number 'd' within the range of 'n'. Using the following equation we can generate the public key

$$Q = d * P \quad (6.2)$$

$d$  = The random number that we have selected within the range of ( 1 to  $n-1$  ).  $P$  is the point on the curve.

‘ $Q$ ’ is the public key and ‘ $d$ ’ is the private key.

Let ‘ $m$ ’ be the message that we are sending. We have to represent this message on the curve. This have in-depth implementation details. All the advance research on ECC is done by a company called certicom. Consider ‘ $m$ ’ has the point ‘ $M$ ’ on the curve ‘ $E$ ’. Randomly select ‘ $k$ ’ from  $[1 - (n-1)]$ .

Two cipher texts will be generated let it be  $C1$  and  $C2$ .

$$C1 = k * P \quad (6.3)$$

$$C2 = M + k * Q \quad (6.4)$$

$C1$  and  $C2$  will be send. We have to get back the message ‘ $m$ ’ that was send to us,

$$M = C2 - d * C1 \quad (6.5)$$

$M$  is the original message that we have send.

## Search Encryption

The data are get encrypted using the ECC (Elliptical Curve Cryptography) algorithm. Here the data are get encrypted using a 256 bit hash code value system. The user analysis are get eradicated using this enhancement techniques so, that the data will be shown as a cipher text to the analyst. Selective aggregation literally refers to selecting the users who satisfy some conditions before aggregating their values, e.g., “the average amount of time online of all the male users”. Herein, “male” is a condition to pick out target users. We suppose there is a centralized table  $T$  that contains attributes and collects users’ answers to them. Attributes (denoted by

att) can only be numeric, because non-numeric attributes cannot be directly aggregated. Boolean attributes are a special type of numeric attributes, to which users' answers are boolean values (0 or 1), e.g., "gender is male". A male user's answer would be 1. Most categorical attributes can be easily transformed into boolean attributes. For example, education level can be decomposed into several boolean attributes: "education level is bachelor", "education level is master", etc. Differential privacy is independent of the adversary's computational power and auxiliary information so it is a very strong guarantee.

## **Search Count**

Analysts are individuals or institutions that want to query about user data. An analyst sends a query  $Q$  to the intermediary and then receives a noisy answer from it. Analysts are assumed to be semi-honest, trying to learn individual users' privacy. An analyst may collude with other analysts or make one single query multiple times. The analyst is the one who will be authorized by any of the organization who will analyze the data count and should make visualization. The analyst will get data from the aggregator who will aggregate the data and sold it to the analyst. Now the aggregator is the one who will search for the user searched contents and the searched content are analyzed. The user searching will be produced with the count value to the analyst and the analyst can only get the count value.

## **CHAPTER 6**

### **CODING AND SCREENSHOT 6.1 SAMPLE CODING Admin product details**

<0%--

Document : admin\_user

Created on : Jan 10, 2018, 4:23:20 PM

Author : Java

--%>

<%@page import="java.util.Random"%>

<%@ include file="include/dbconnect.jsp" %>

<!doctype html>

<html>

<head>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<title>OUB</title>

<link rel="stylesheet" href="styles.css" type="text/css" />

<!--[if lt IE 9]>

<script src="http://html5shiv.googlecode.com/svn/trunk/html5.js"></script>

<![endif]--> <!--

adage, a free CSS web template by ZyPOP (zypopwebtemplates.com/)

Download: <http://zypopwebtemplates.com/>

License: Creative Commons Attribution

//-->

<meta name="viewport" content="width=device-width, minimum-scale=1.0, maximum-scale=1.0" />

<style type="text/css">

<!--

.style32 {color: #FA7108}

```

.style4 {color: #2F5E5E}
.style33 {color: #0C2136}
-->
</style>
</head>
<body>
<div id="container" class="width">

    <header>

        <h1><a href=""> Online <span> User Behavior</span></a></h1>

    </header>

    <nav>
        <div class="inner-nav">
            <ul>
                <li class="first current_page_item"><a
href="admin_home.jsp">Home</a></li>
                <li><a href="admin_product.jsp">New Product</a></li>
                <li><a href="admin_product_details.jsp">Product Details</a></li>
                <li><a href="admin_user.jsp">User</a></li>
                <li><a href="logout.jsp">Logout</a></li>

            </ul>
        </div>

```

</nav>

<div id="body">

<section id="content">

<article>

<div class="article-info"><div align="right">

<table width="200" border="0">

<tr>

<td class="tdsh"><h2 align="center">Product Details</h2></td>

<td class="tdsh"> <div align="right"></div></td> </tr> </table>

</div>

</div>

</article>

<article class="expanded">

<form name="form1" method="post" action="">

<table width="845" border="0" align="right">

<tr>

<td width="56"><h4 class="style4 style32"><span class="style5 style32">S.no</span></h4></td>

<td width="170"><h4 class="style32"><span class="style5">Product ID</span></h4></td>

<td width="186"><h4 class="style32"><span class="style5">Product Type</span></h4></td>

```

        <td width="155"><h4 class="style32"><span class="style5">Product
name </span></h4></td>
        <td width="126"><h4 class="style32">price</h4></td>
        <td width="126"><h4 class="style32">E-Date</h4></td>
    </tr>
    <%

```

```

        int s=0;
        String qry="select * from product_things";
//        out.print(qry);

```

```

        ResultSet rs=stmt.executeQuery(qry); while(rs.next())
        {
            s++;
            %>

```

```

    <tr>
        <td class="tdsh"><span class="style33">
        <% out.print(s);%>
        </span></td>
        <td class="tdsh"><span class="style33">
        <% out.print(rs.getString("id"));%>
        </span></td>
        <td class="tdsh"><span class="style33">
        <% out.print(rs.getString("type"));%>
        </span></td>

```

```

        <td class="tdsh"><span class="style33">
        <%
        out.print(rs.getString("product"));%>
        </span></td>
        <td class="tdsh"><span class="style33">
        <% out.print(rs.getString("price"));%>
        </span></td>
        <td class="tdsh"><span class="style33">
        <% out.print(rs.getString("report"));%>
        </span></td>
    </tr>
    <%

        }

        %>
    </table>
    </form>
    <h3>&nbsp;</h3>
</article>
</section>

<aside class="sidebar">

<ul>

```

```

</li>
    <h4><span>Welcome Admin </span></h4>
    <ul><li>
        <div align="justify"><a href="#">The proposed method is n out of n
multi secret sharing scheme. Transmission of multiple secret images
simultaneously is achieved through this proposed work. The secret image can be
revealed only when all the n shares are received by the receiver and
decrypted.</a></div>
    </li>
    <li><a href="user_reg.jsp"></a></li>
    </ul>
</li>
</ul>
</aside>
<div class="clear"></div>
    <div class="article-info"><div align="right">
        <table width="200" border="0">
            <tr>
                <td><h2 align="center">Search Details</h2></td>
                <td><div align="right"></div></td>
            </tr> </table>
        </div>
    </div>
</article>

```

```

<article class="expanded">
  <form name="form1" method="post" action="">
    <table width="60%" border="0">
<tr>
  <td width="8%">&nbsp;</td>
  <td width="58%"><table width="410" border="0" align="center">
    <tr>
      <td width="56%"><h4 class="style33"><span
class="style5">S.no</span></h4></td>
      <td width="170"><h4 class="style33"><span
class="style5">PublicKey</span></h4></td>
      <td width="170"><h4 class="style33"><span
class="style5">PrivateKey</span></h4></td>
    </tr>
  </td>

```

```

int s=0;

String qry="select * from product_things";

// out.print(qry);

ResultSet rs=stmt.executeQuery(qry); while(rs.next())
{ s++;
  %>
<tr>
  <td class="tdsh"><span class="style34">

```

```

        <% out.print(s);%>
    </span></td>
    <td class="tdsh"><span class="style34">
        <% out.print(rs.getString("pu_key"));%>
    </span></td>
    <td class="tdsh"><span class="style34">
        <% out.print(rs.getString("pri_key"));%>
    </span></td>
</tr>
<%
    }

<tr>
    <td class="tdsh"><span class="style34">
        <% out.print(s);%>
    </span></td>
    <td class="tdsh"><span class="style34">
        <% out.print(rs.getString("id"));%>
    </span></td>
    <td class="tdsh"><span class="style34">
        <% out.print(rs.getString("product"));%>
    </span></td>
    <td class="tdsh"><span class="style34">
        <% out.print(rs.getString("type"));%>
    </span></td>
    <td class="tdsh"><span class="style34">

```

```

        <% out.print(rs.getString("price"));%>
    </span></td>
</tr>
<%

        }

    %>

</table>
</form>
<h3>&nbsp;</h3>
</article>
</section>

<aside class="sidebar">

<ul>
<li>
    <h4><span>Welcome <%out.print(uname);%></span></h4>
    <ul><li>
        <div align="justify">With increasing performance and range of
offering, more and more enterprises are opting to take their services into the cloud.
At the same time the Wall Street Journal finds that CIO preoccupation with cyber
security is dropping as a recent Gartner study finds.</div> </li>
        <li></li>
    </ul>

```

```

        </li>
    </ul>
</aside>
    <div class="clear"></div>
</div>
<footer>
    <div class="footer-bottom">
        <p>&copy; YourSite 2018. <a href="index.jsp">VSS</a> </p> </div>
    </footer>
</div>
</body> </html>
    <%

```

```

        File savedFile = new File(getServletContext().getRealPath("/")
+"indata/", "in.txt");
        File savedFile1 = new File(getServletContext().getRealPath("/") +"encrypt/",
"in.txt");

```

```

//////////write
BufferedWriter bw = null;
FileWriter fw = null; try
{
String content = word; fw =
new FileWriter(savedFile); bw

```

```

        = new BufferedWriter(fw);
        bw.write(content);
    } catch (Exception
    e)
    {

        e.printStackTrace();
    } finally
    { try {
        if (bw != null)
        bw.close(); if
        (fw != null)
        fw.close();
    } catch (Exception ex) { ex.printStackTrace();
    }
    }

```

```

////////

```

```

String df="" + savedFile;

```

```

String dfl="" + savedFile1;

```

```

// Crypt.EncryptFile(df, dfl, pub_key);

```

```

Crypt.ECCEncryptFile(df, dfl, pub_key);

```

```

////read data

```

```

BufferedReader br = null;
FileReader fr = null;

try {

    //br = new BufferedReader(new FileReader(FILENAME)); fr
    = new FileReader(savedFile1);

    br = new BufferedReader(fr); String

    sCurrentLine;

    while ((sCurrentLine = br.readLine()) != null) {
        System.out.println(sCurrentLine);
        en_data+=sCurrentLine;
    }

} catch (Exception e) {

    e.printStackTrace();

} finally {

try {

    if (br != null) br.close();

```

```

        if (fr != null) fr.close();

    } catch (Exception ex) {

        ex.printStackTrace();

    }

}

/////

String qry1 = "select max(id) as maxid from
data_search"; ResultSet rs1 = stmt2.executeQuery(qry1); int
id1 = 0; if (rs1.next()) { id1 = rs1.getInt("maxid");
}
int id2 = id1 + 1;

String ins = "insert into data_search values('"+id2+"','" + uname +
", '"+word+"','" + en_data + "','0','0','0')"; //out.print(ins);
int n = stmt1.executeUpdate(ins);

%>

```

## **ECC aggregator encryption**

```

<%@page import="java.sql.ResultSet"%>
<%@ include file="include/dbconnect.jsp" %>
<%
try
{
String btn=request.getParameter("btn");

if(btn.equals("Submit"))
{
String uname=request.getParameter("name");
String pass=request.getParameter("pass");
//String qry="select * from user_reg where username='"+uname+"
&& pass='"+pass+"'";
// out.print(qry);
// ResultSet rs=stmt.executeQuery(qry);
// if(rs.next())
if((uname.equals("aggregator"))&&(pass.equals("123")))
{

response.sendRedirect("aggregator_home.jsp");
} else
{

%>
<script language="javascript">
alert("user name/ pass Rong!");
</script>

```

```

                                <%                                }

                                //rs.close();

                                }

} catch(Exception
e)
{

}

%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!doctype html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>OUB</title>
<link rel="stylesheet" href="styles.css" type="text/css" />
<!--[if lt IE 9]>
<script src="http://html5shiv.googlecode.com/svn/trunk/html5.js"></script>
<![endif]--> <!-- adage, a free CSS web template by ZyPOP
(zypopwebtemplates.com/) Download:
http://zypopwebtemplates.com/

```

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```
//-->
```

```
<meta name="viewport" content="width=device-width, minimum-scale=1.0,
maximum-scale=1.0" />
```

```
<style type="text/css">
```

```
<!--
```

```
.style2 {color: #2E6290; font-weight: bold; }
```

```
.style3 { color:
#FA8B37; font-
weight: bold;
```

```
}
```

```
.style11 {color: #FF8000; }
```

```
.style12 {color: #004080; }
```

```
.style13 {color: #209D9D}
```

```
-->
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<div id="container" class="width">
```

```
<header>
```

```
<h1><a href=""> Online <span> User Behavior</span></a></h1>
```

```
</header>
```

```
<nav>
```

```

<div class="inner-nav"> <ul>
    <li class="start selected"><a href="index.jsp">Home</a></li>

    <li><a href="aggregator.jsp">Aggregator</a></li>
    <li><a href="authority.jsp">Authority</a></li>
    <li><a href="analyst.jsp">Analyst</a></li>

</ul>
</div>
</nav>

<div id="body">

    <section id="content">

<article>
    <div class="article-info"><div align="right">
        <table width="200" border="0">
        <tr>
            <td><h2 align="center">Aggregator Login </h2></td>
            <td><div align="right"></div></td>
```

```
</tr> </table>
```

```
</div>
```

```
</div>
```

```
</article>
```

```
<article class="expanded">
```

```
<form name="form1" method="post" action="">
```

```
<table width="60%" border="0">
```

```
<tr>
```

```
<td width="23%">&nbsp;</td>
```

```
<td width="57%"><table width="336" border="0" align="center">
```

```
<tr>
```

```
<td width="144" class="tdsh"><div align="right" class="style12">
```

```
<h4> user name </h4>
```

```
</div></td>
```

```
<td width="14" class="tdsh"><h4>&nbsp;</h4></td>
```

```
<td width="156" class="tdsh"><h4>
```

```
<label>
```

```
<input name="name" type="text" class="txtclr" id="name" />
```

```
</label>
```

```
</h4></td>
```

```
</tr>
```

```
<tr>
```

```
<td height="37" class="tdsh"><div align="right" class="style12">
```

```

        <h4> password </h4>
    </div></td>

    <td class="tdsh"><h4>&nbsp;</h4></td>

    <td class="tdsh"><h4>

        <input name="pass" type="password" class="txtclr" id="pass" />
    </h4></td>

</tr>

<tr>

    <td height="56" class="tdsh"><h4>&nbsp;</h4></td>

    <td colspan="2" class="tdsh"><h4>

        <label>

            <input name="btn" type="submit" class="btnclr" id="btn"
value="Submit" />

        </label>

    </h4></td>

</tr>

</table></td>

    <td width="20%">&nbsp;</td>

</tr>

</table> </form>

    <p align="justify">&nbsp;</p>
</article>

</section>

<aside class="sidebar">

```

```

<ul>
  <li>
    <h4><span>Categories</span></h4>
    <ul>
      <li><a href="index.jsp">Home Page</a></li>
      <li><a href="user_reg.jsp">User
Registration</a></li>
      <li><a href="user.jsp">User Login</a></li>
      <li><a href="admin.jsp">Admin Login</a></li> </ul>
    </li>

    <li>
      <h4><span>Helpful Links</span></h4>
      </li>

      <li><ul>
        <li><a href="index.jsp" title="premium
templates">Home</a></li>
        <li><a href="about.jsp" title="web hosting">About As</a></li>
        <li><a href="contact.jsp" title="premium
templates">Contact As</a></li>
      </ul>
    </li>
  </ul>
</aside>
<div class="clear"></div>

```

```

</div>

<footer>

  <div class="footer-bottom">

    <p>&copy; YourSite 2018. <a href="index.jsp">VSS</a> </p> </div>

  </footer>

</div>

</body>

</html>

```

## 6.2 SAMPLE SCREENSHOT

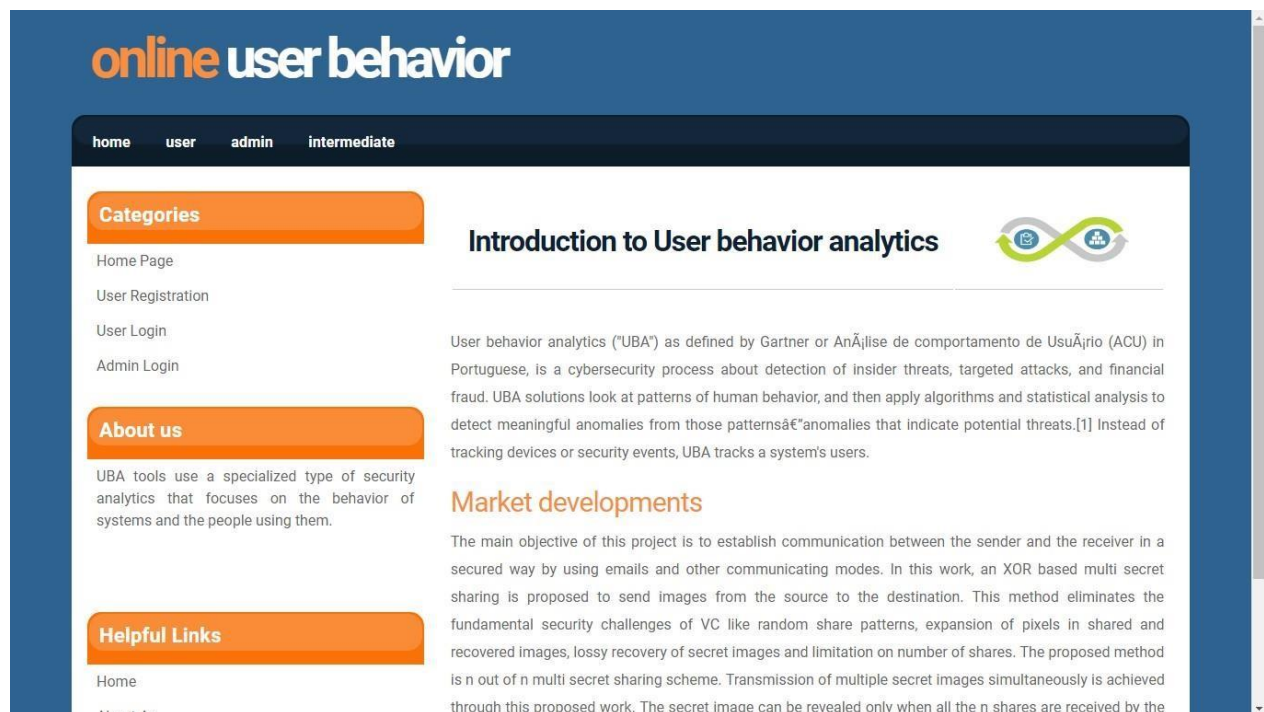


Fig 6.1 Home page of Ad blocking system with the avoidance of user behavior analysis

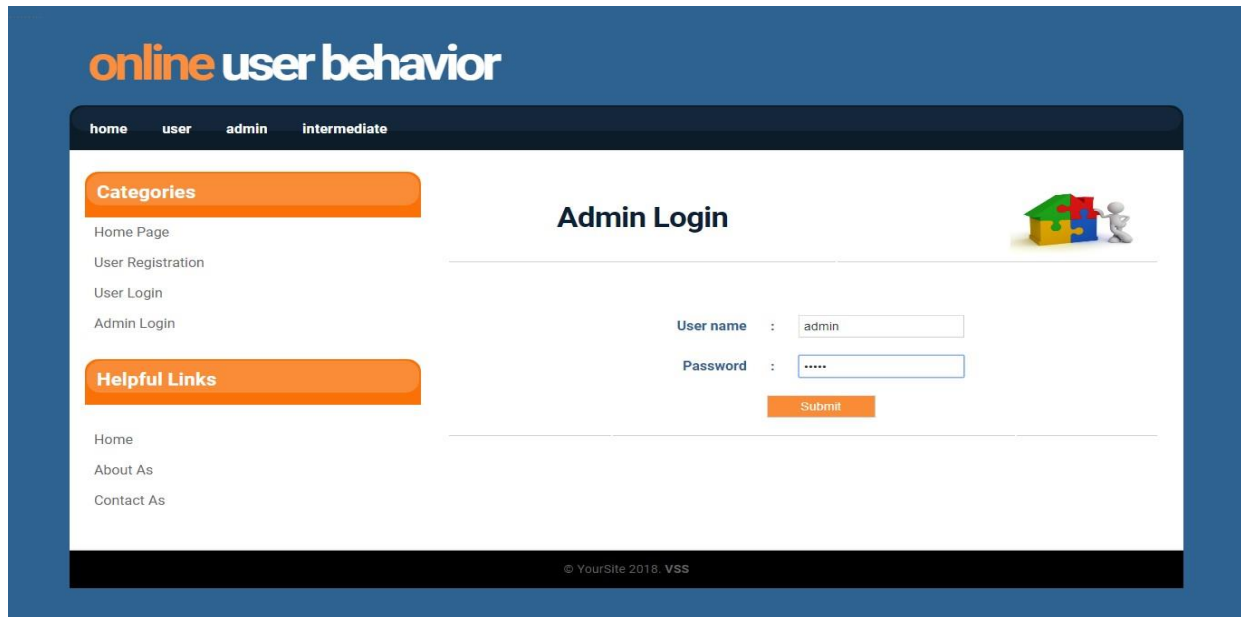


Fig 6.2 Admin Login page

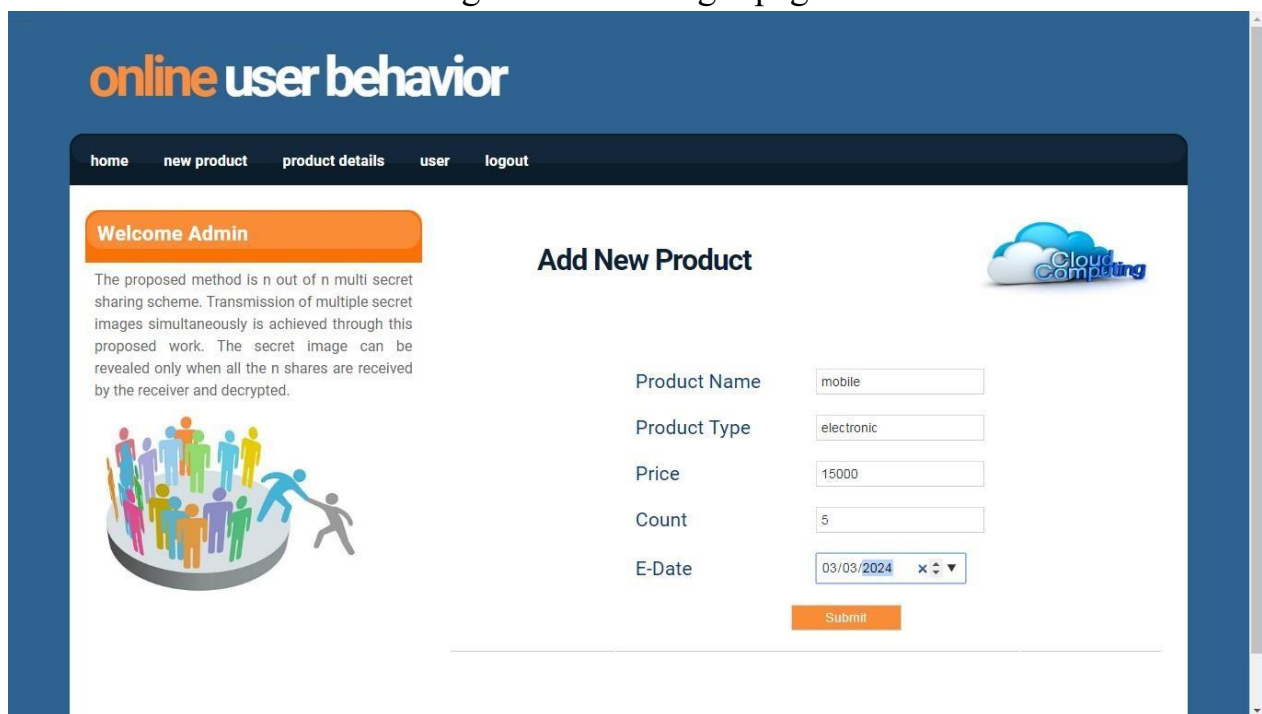


Fig 6.3 Admin new product add

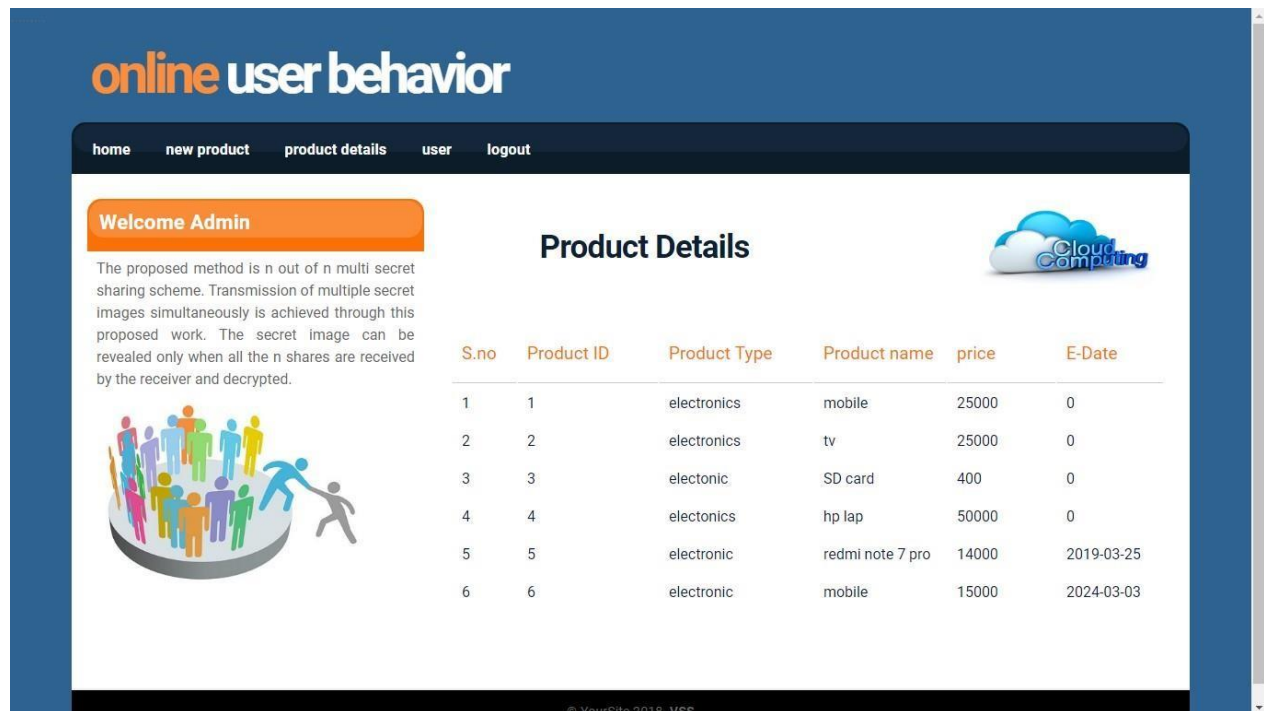


Fig 6.4 Product details added in the page

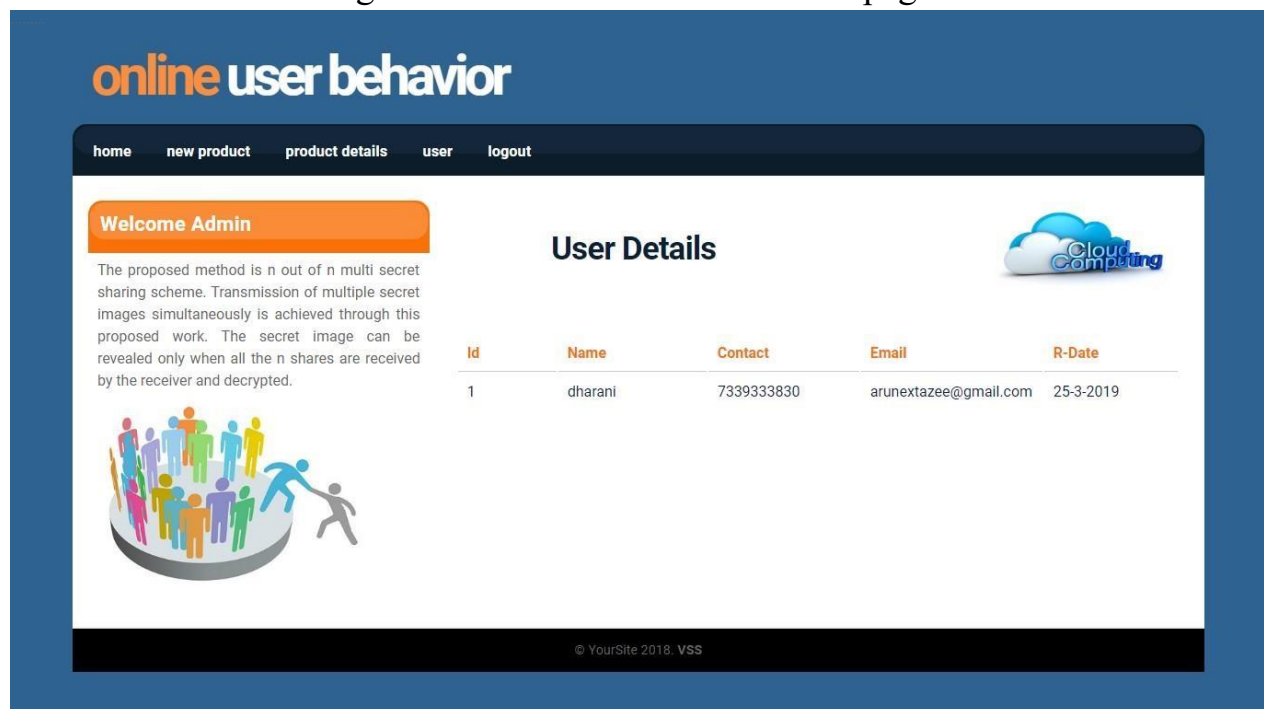
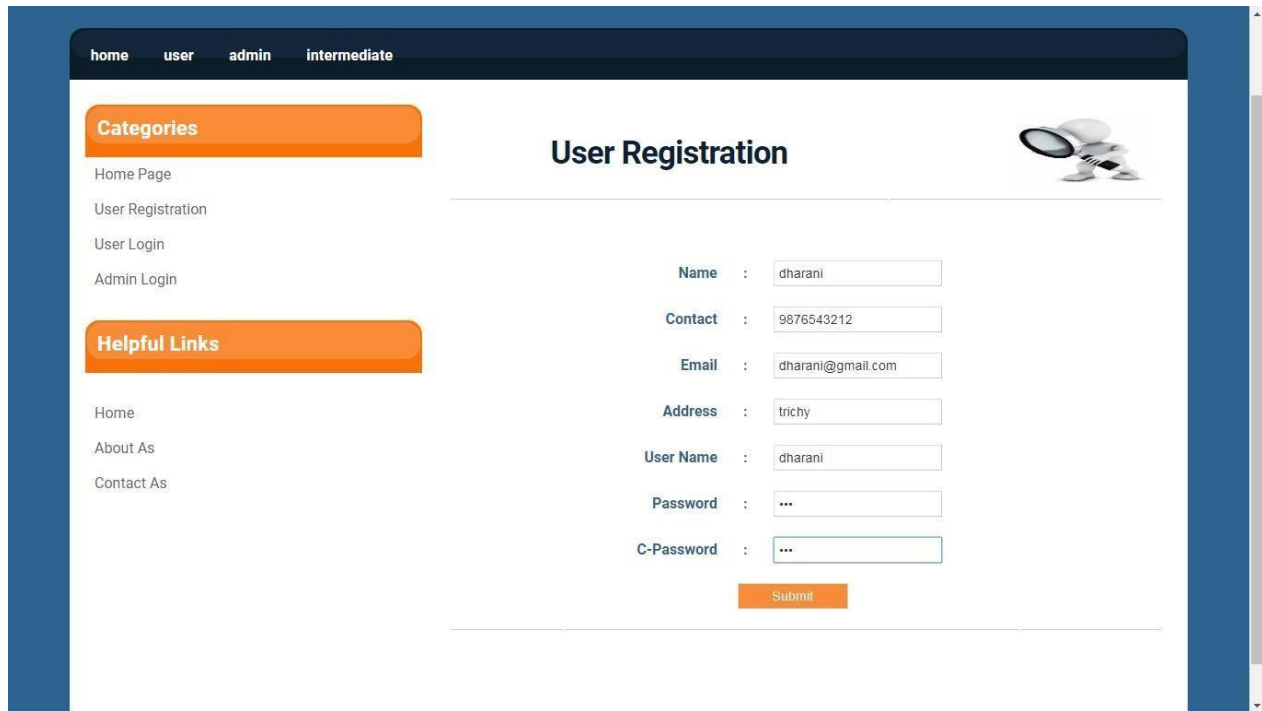


Fig 6.5 user details added in the page



The image shows a web application interface for user registration. At the top, there is a dark blue navigation bar with links: home, user, admin, and intermediate. On the left side, there are two orange boxes: 'Categories' and 'Helpful Links'. The 'Categories' box lists 'Home Page', 'User Registration', 'User Login', and 'Admin Login'. The 'Helpful Links' box lists 'Home', 'About As', and 'Contact As'. The main content area is titled 'User Registration' and features a form with the following fields: Name (dharani), Contact (9876543212), Email (dharani@gmail.com), Address (trichy), User Name (dharani), Password (masked with dots), and C-Password (masked with dots). A 'Submit' button is located at the bottom of the form. A small 3D robot icon is positioned to the right of the title.

home user admin intermediate

**Categories**

- Home Page
- User Registration
- User Login
- Admin Login

**Helpful Links**

- Home
- About As
- Contact As

## User Registration

Name : dharani

Contact : 9876543212

Email : dharani@gmail.com

Address : trichy

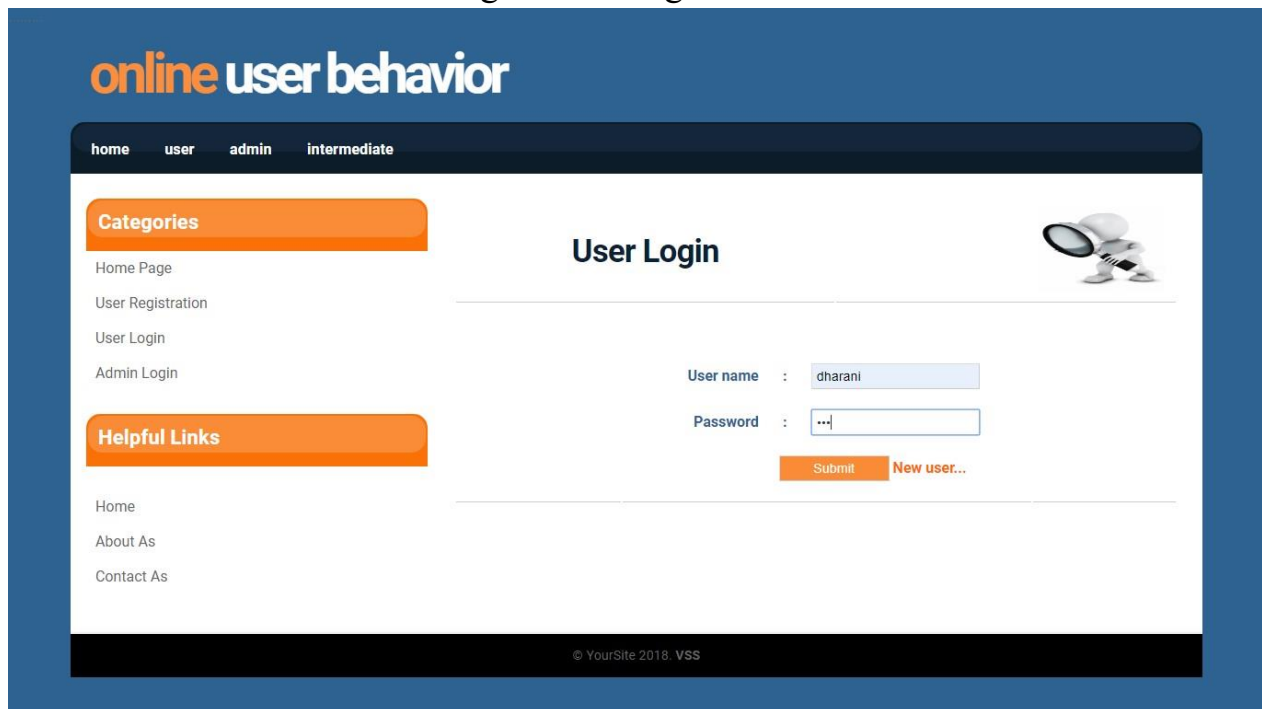
User Name : dharani

Password : ...

C-Password : ...

Submit

Fig 6.6 user registration



The image shows a web application interface for user login. At the top, there is a dark blue navigation bar with links: home, user, admin, and intermediate. On the left side, there are two orange boxes: 'Categories' and 'Helpful Links'. The 'Categories' box lists 'Home Page', 'User Registration', 'User Login', and 'Admin Login'. The 'Helpful Links' box lists 'Home', 'About As', and 'Contact As'. The main content area is titled 'User Login' and features a form with the following fields: User name (dharani) and Password (masked with dots). A 'Submit' button and a 'New user...' link are located at the bottom of the form. A small 3D robot icon is positioned to the right of the title.

online user behavior

home user admin intermediate

**Categories**

- Home Page
- User Registration
- User Login
- Admin Login

**Helpful Links**

- Home
- About As
- Contact As

## User Login

User name : dharani

Password : ...

Submit New user...

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Fig 6.7 User Login page

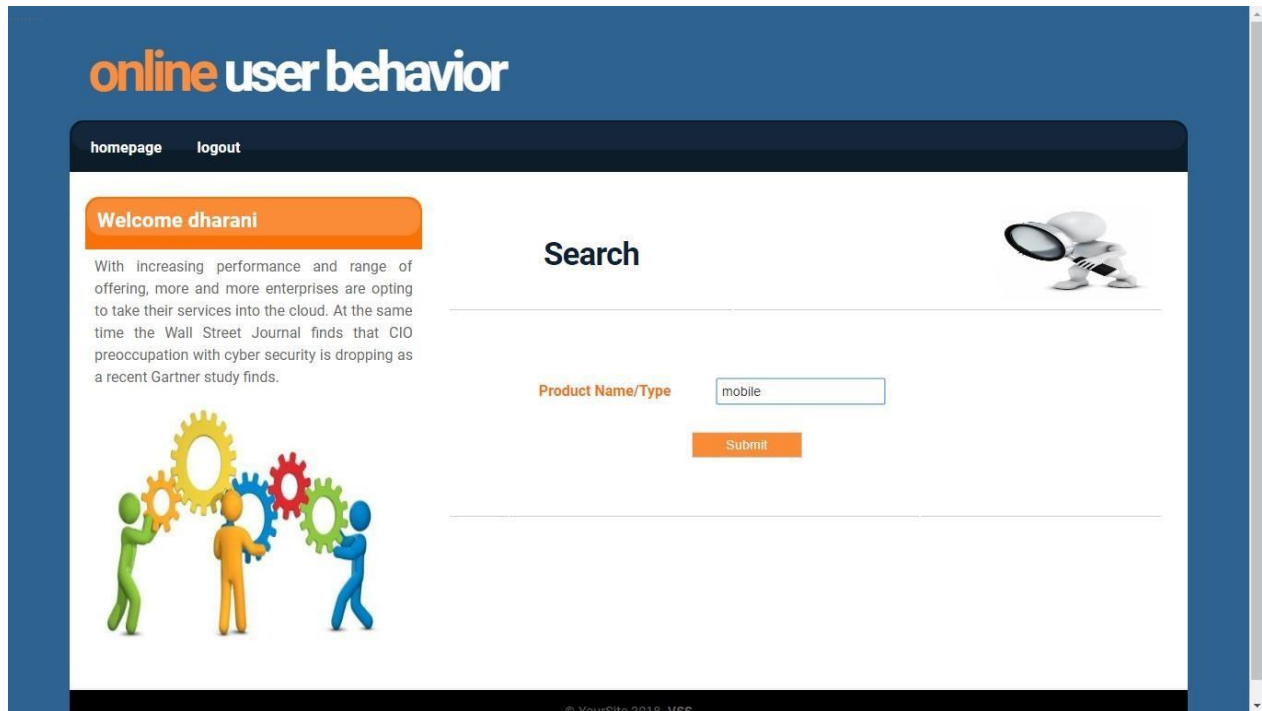


Fig 6.8 User search page for the products

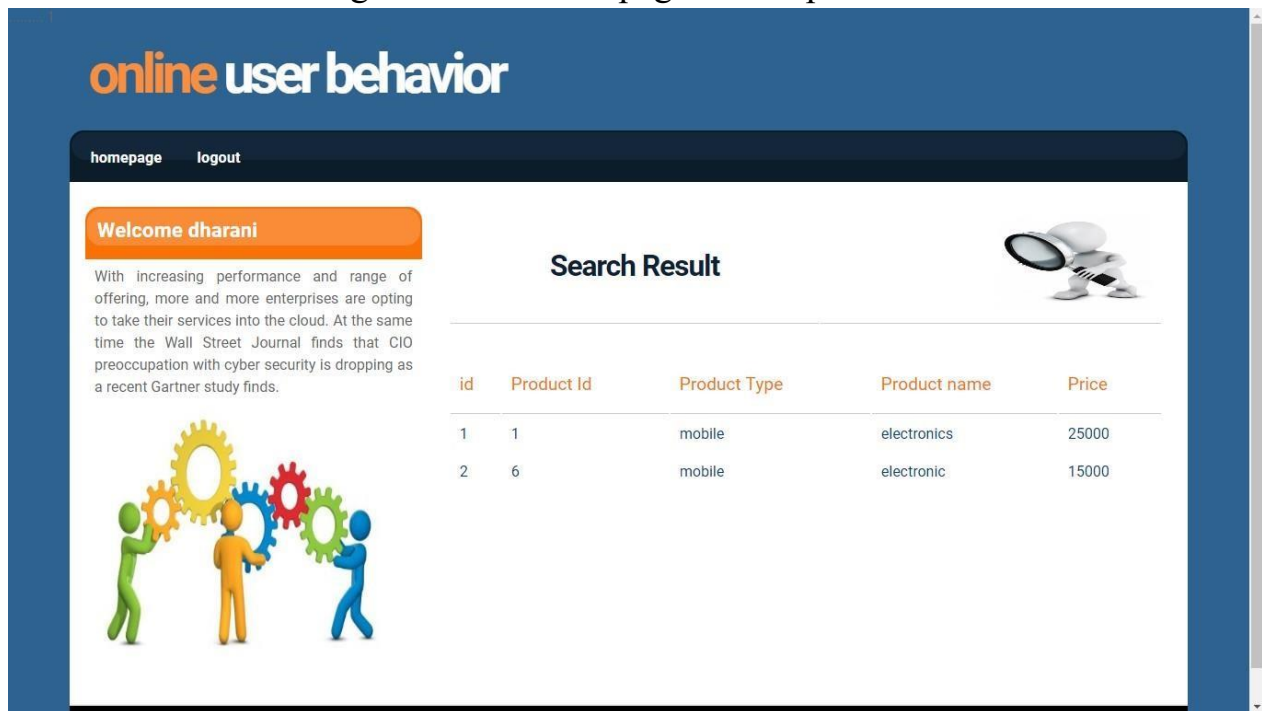


Fig 6.9 Searched results where the user can buy products from this searched and the searched data are getting stored in the database

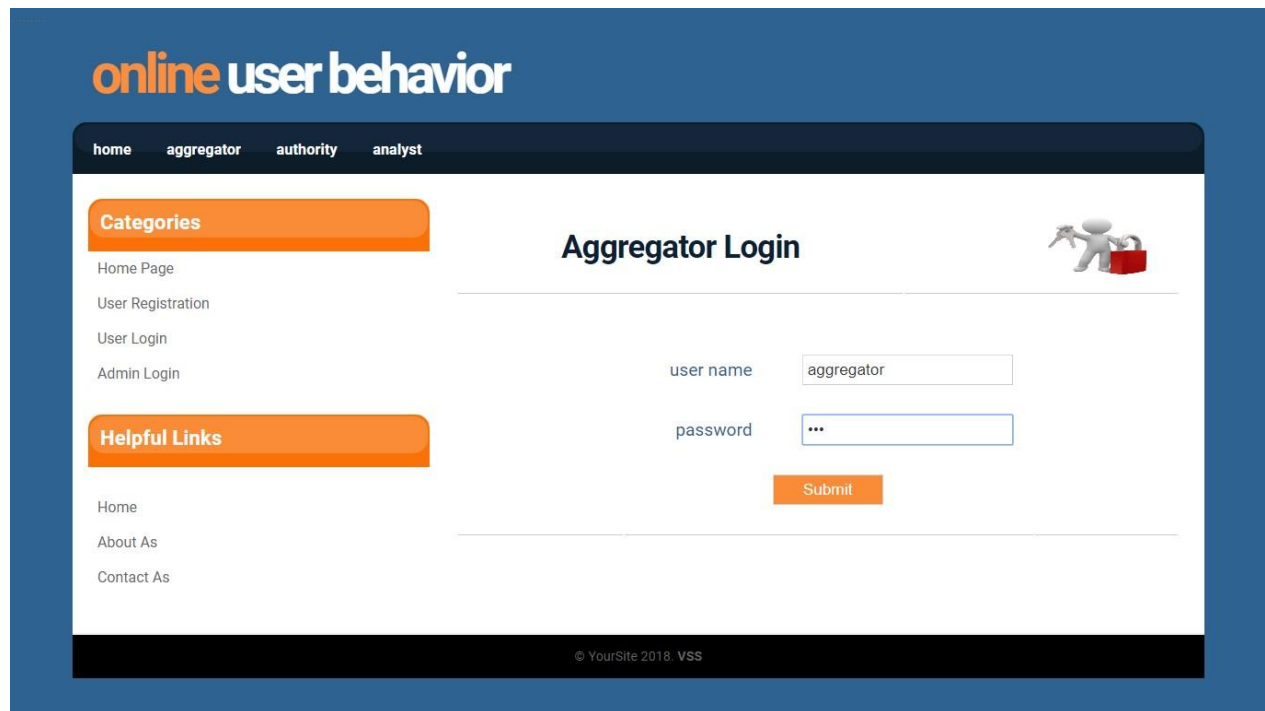


Fig 6.10 aggregator login

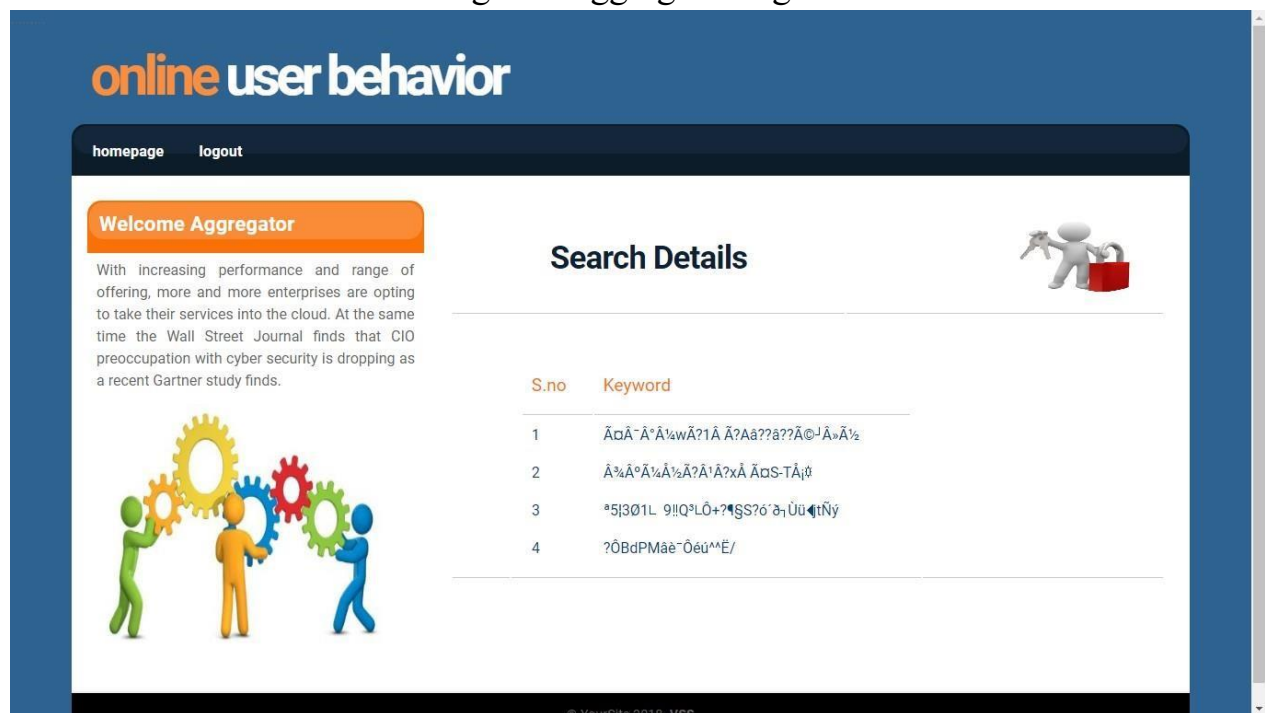


Fig 6.11 ECC based encrypted data shown to the aggregator who aggregates the data

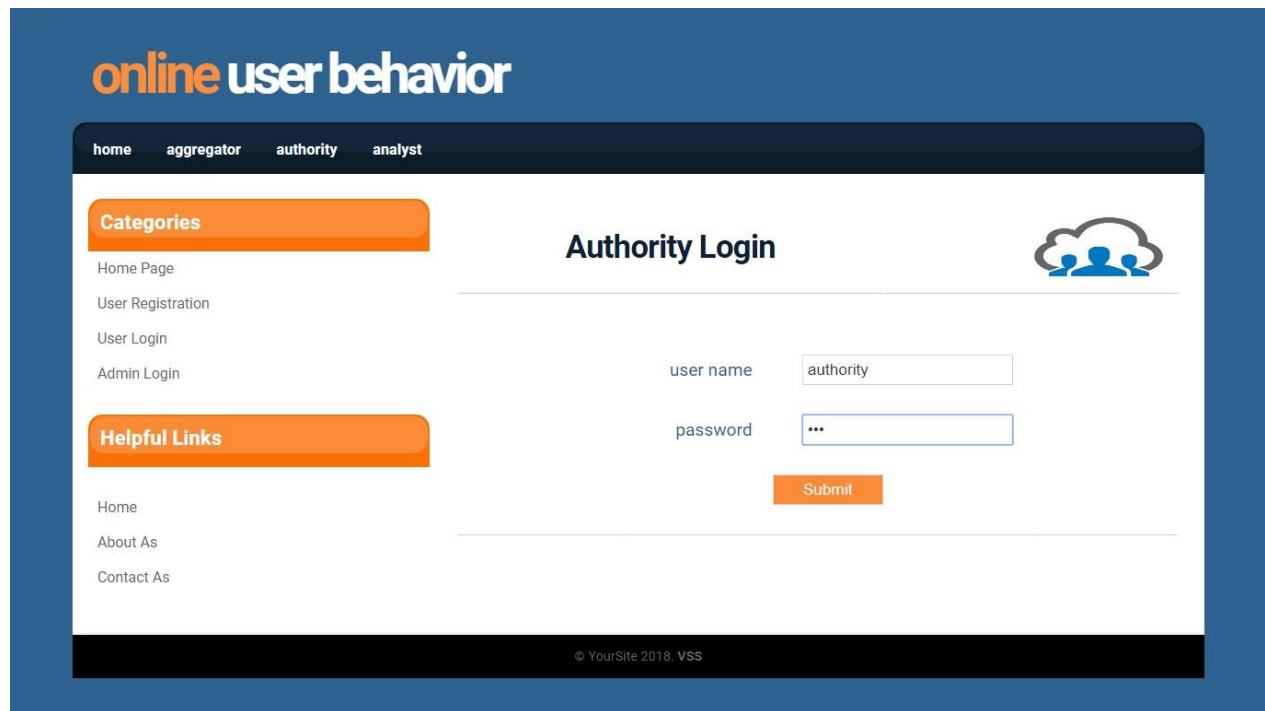


Fig 6.12 Authority login that generates the encryption

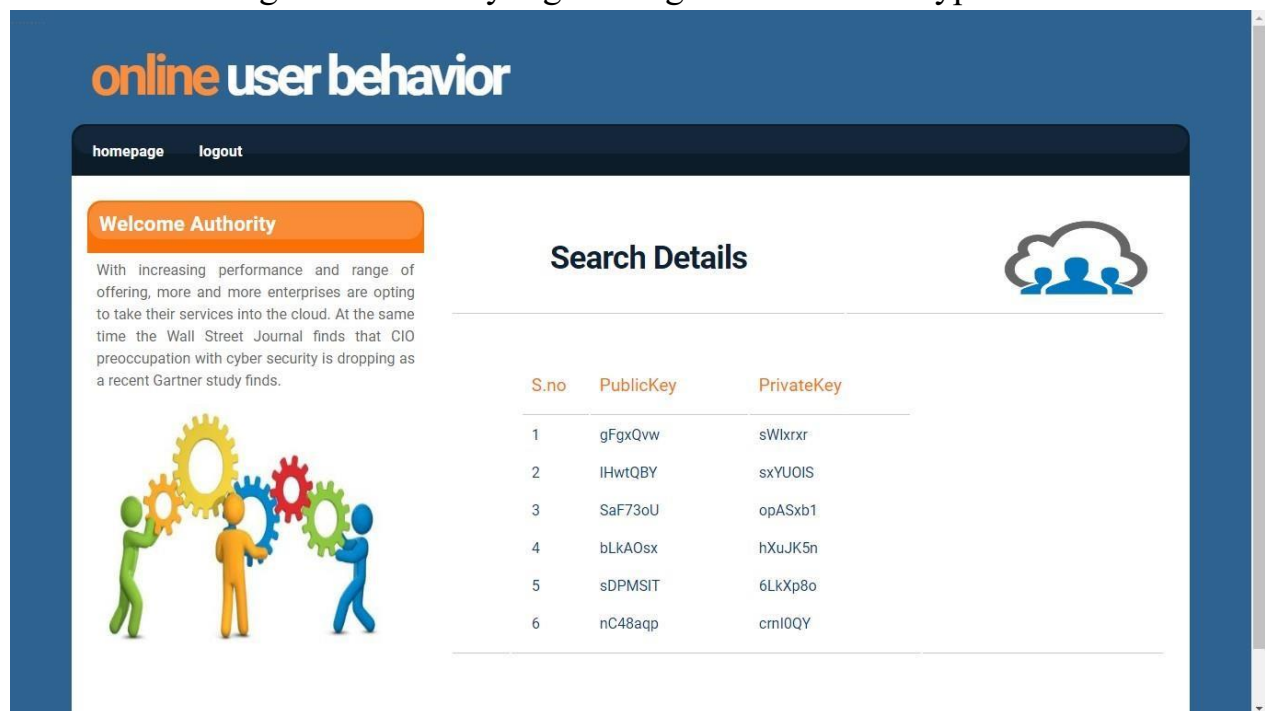


Fig 6.13 generates the public and the private key for the searched products

The screenshot shows the 'Analyst Registration' page. On the left, there is a sidebar with 'Categories' (Home Page, User Registration, User Login, Admin Login) and 'Helpful Links' (Home, About As, Contact As). The main content area has a dark blue header with 'homepage aggregator authority analyst' and a user icon. The registration form contains the following fields and values:

| Field      | Value          |
|------------|----------------|
| Name       | rose           |
| Contact    | 0987654321     |
| E-mail     | rose@gmail.com |
| Address    | kk nagar       |
| City       | trichy         |
| User name  | rose           |
| password   | ...            |
| c-password | ...            |

A 'Submit' button is located at the bottom right of the form.

Fig 6.14 Analyst Registration

The screenshot shows the 'Analyst Login' page. The sidebar and header are identical to the registration page. The login form contains the following fields and values:

| Field     | Value |
|-----------|-------|
| user name | rose  |
| password  | ...   |

Below the password field are two buttons: 'Submit' and 'New user...'. At the bottom of the page, a footer reads '© YourSite 2018. VSS'.

Fig 6.15 Analyst registration

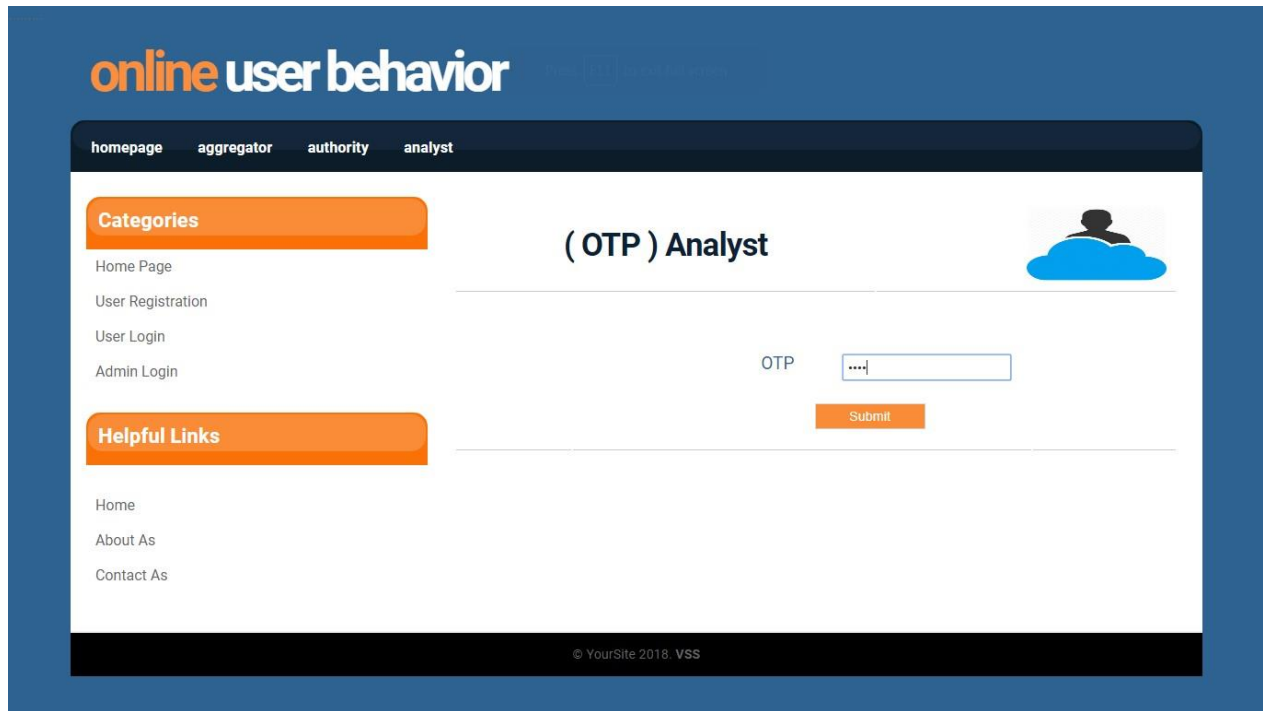


Fig 6.16 OTP verification

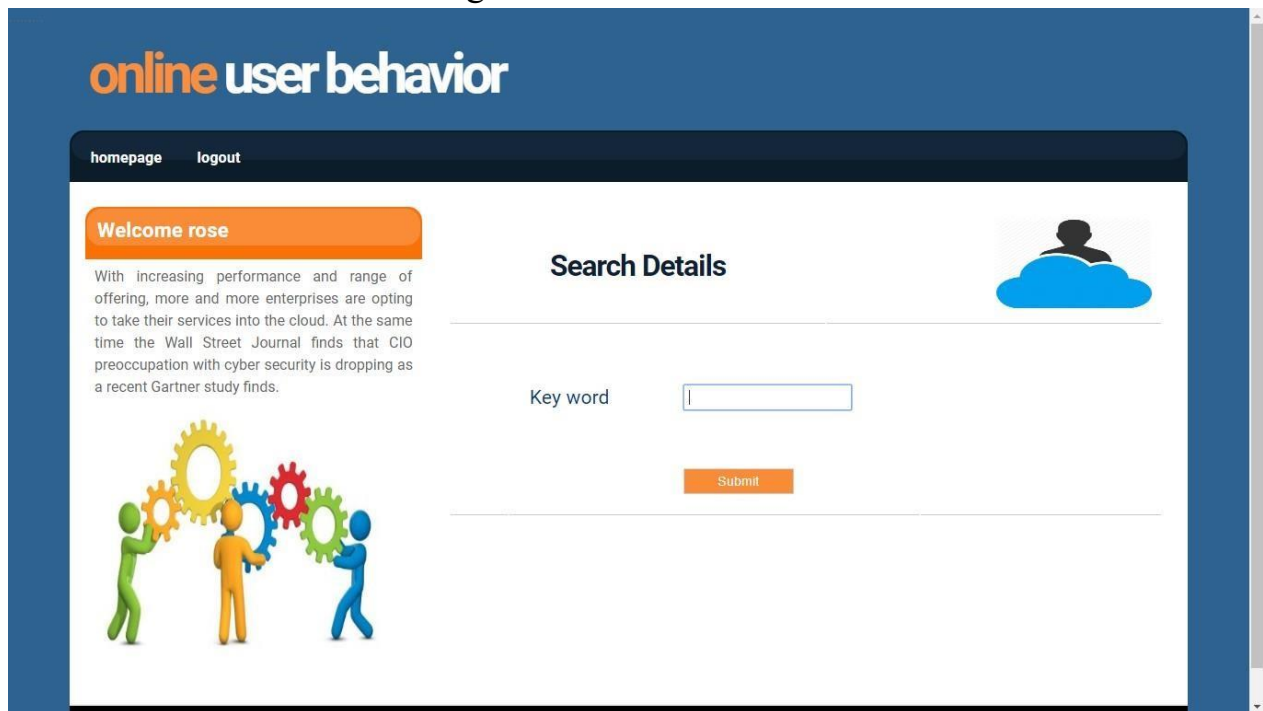


Fig 6.17 Searched keyword data

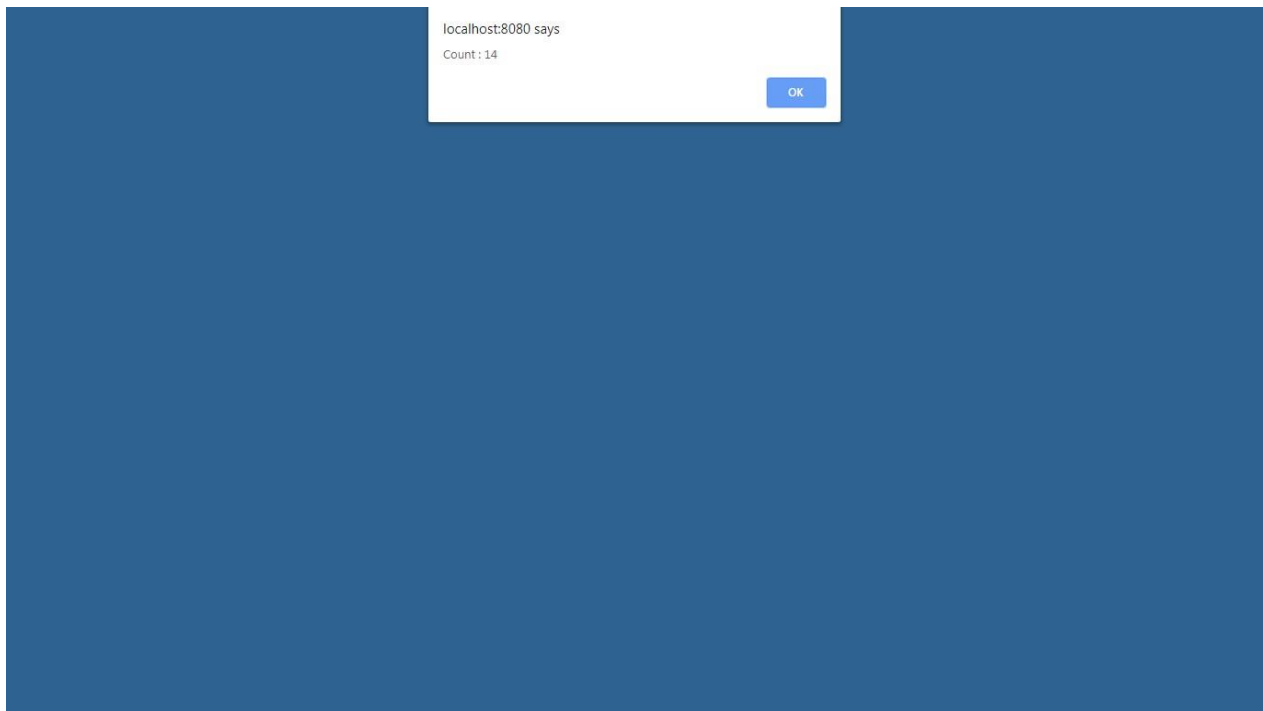


Fig 6.18 Shows only the count to the analyst

## **CHAPTER 7 CONCLUSION AND FUTURE WORK 7.1 CONCLUSION**

In this project, the system has described the challenges of making online user data aggregation while preserving users' privacy. Based on ECC homomorphism cryptosystem, we have designed the first system that is able to securely and selectively aggregate user data, making it practical in realistic data analytics. It guarantees strong privacy preservation by utilizing differential privacy mechanism to protect individuals' privacy. The system has presented PPSA to evaluate aggregation selected by one attribute, and extended it to aggregation selected by multiple boolean attributes and by one numeric attribute. Extensive experiments have shown that PPSA supports various selective aggregate queries with acceptable overhead and high accuracy. The mining patterns are get eliminated and the count will be only produced to the analyst. This helps to avoid the deception of unknown advertisements in website.

## **7.2 FUTURE ENHANCEMENT**

For the further research the user based advertisement can be divided as malicious advertisements and normal advertisements. Here the data will classify using the spam reports with good accuracy algorithms and system.

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