

HADOOP MAP REDUCE FOR MOBILE CLOUDS

at

**Sathyabama Institute of Science and Technology
(Deemed to be University)**

Submitted in partial fulfillment of the requirements for the award of
Bachelor of Engineering Degree in electronics and communication
Engineering

By

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ENGINEERING**

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work done by **VENNAPUSA VENU GOPAL REDDY AND GUNTURI RAJA SUBASH CHENDRA** who carried out the project entitled “HADOOP MAP REDUCE FOR MOBILE CLOUDS” under my supervision from august 2020 to march 2022.

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DECLARATION

We, VENNAPUSA VENU GOPAL REDDY (38130237) AND GUNTURI RAJA SUBASH CHENDRA (38130078) hereby declare that the Project Report entitled HADOOP MAP REDUCE FOR MOBILE CLOUDS done by me under the guidance of **Dr.E.LOGASHNMUGAM.M.E.,PH.D.**, at Sathyabama institute of science and technology is submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering degree in electronics and communication Engineering.

DATE:- 9th march2022

PLACE:- Chennai, tamilnadu

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SIGNATURE OF THE CANDIDATES

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ABSTRACT

The main aim of this project is classifying the networking information based on its speed. Our evaluation shows that the implementation addresses all constraints in processing large amounts of data in mobile clouds. Here SVM Classifier algorithm is used. “**Support Vector Machine**” (SVM) is a supervised machine learning algorithm which can be used for both classification and regression challenges. However, it is mostly used in classification problems. The objective of the support vector machine algorithm is to find a hyper plane in an N-dimensional space (N—the number of features) that distinctly classifies the data points. To separate the two classes of data points, there are many possible hyper planes that could be chosen. Our objective is to find a plane that has the maximum margin, i.e. the maximum distance between data points of both classes. Maximizing the margin distance provides some reinforcement so that future data points can be classified with more confidence. Thus, our system is a viable solution to meet the growing demands of data processing in a mobile environment. This Project will classifying and predicting networking speed in each location and then provide the high speed networking location as result. The final result will get stored on to the cloud for increasing the security level.

CHAPTER 1

INTRODUCTION

1.1 General Introduction:

Big data is a term for data sets that are so large or complex that traditional data processing. Challenges include capture, storage, analysis, data duration, search, sharing, transfer, visualization, querying, and updating and information privacy. The term "big data" often refers simply to the use of predictive analytics, user behaviour analytics, or certain other advanced data analytics methods that extract value from data, and seldom to a particular size of data set. Big Data is a act of gathering and storing large amount of information for analysis. Big Data uses the Hadoop technology for effectively storing and processing enormous amount of data. It boosts the performance of processing big data.

'Big Data' is also a data but with a huge size. 'Big Data' is a term used to describe collection of data that is huge in size and yet growing exponentially with time. In short, such a data is so large and complex that none of the traditional data management tools are able to store it or process it efficiently.

Data in its raw form has no value. Data needs to be processed in order to be of valuable. However, herein lies the inherent problem of big data. Is processing data from native object format to a usable insight worth the massive capital cost of doing so? Or is there just too much data with unknown values to justify the gamble of processing it with big data tools? Most of us would agree that being able to predict the weather would have value; the question is whether that value could outweigh the costs of crunching all the real-time data into a weather report that could be counted on.

Big data refers to a process that is used when traditional data mining and handling techniques cannot uncover the insights and meaning of the underlying data. Data that is unstructured or time sensitive or simply very large cannot be processed by relational database engines. This type of data requires a different processing approach called big data, which uses massive parallelism on readily-available hardware.

Big data reflects the changing world we live in. The more things change, the more the changes are captured and recorded as data. Take weather as an example. For a weather forecaster, the amount of data collected around the world about local conditions is substantial. Logically, it would make sense that local environments dictate regional effects and regional effects dictate global effects, but it could well be the other way around. One way or another, this weather data reflects the attributes of big data, where real-time processing is needed for a massive amount of data, and where the large number of inputs can be machine generated, personal observations or outside forces like sun spots. Processing information like this illustrates why big data has become so important.

Most data collected now is unstructured and requires different storage and processing than that found in traditional relational databases. Available computational power is sky-rocketing, meaning there are more opportunities to process big data.

The Internet has democratized data, steadily increasing the data available while also producing more and more raw data.

1.2 Objectives:

- The main objective of the process is to classifying the networking information based on its speed.
- Implementing support vector machine classifier is to increase the performance of the system by finding maximum margin of the hyperplane.

CHAPTER 2

SYSTEM PROPOSAL

2.1 EXISTING SYSTEM:

The existing work they have analysed the K-means, K-Meoids, EM clustering, Outliers algorithms. It doesn't provide the more accurate result. Incorrect and misleading of data will produce the wrong analysis result. Existing system doesn't maintain and process the data securely. And they were not that much efficient so they proposed the some of the algorithms to done the proposed work.

2.1.1 DISADVANTAGES:

- Sparsity Problems
- Theoretical Limits.
- Loss of Information.
- Incorrect Classification Results.

2.2 PROPOSED SYSTEM:

The proposed model is introduced to overcome all the disadvantages that arise in the existing system. It reduces the information loss and the bias of the inference due to the multiple estimates. To enhance the performance of our proposed system, we dynamically classifying the mobile data oriented information. Then here they use the SVM classifier to classify the dataset and after that they test the system by using the dataset. And finally they predict the result and find out the speed of networks.

2.2.1 ADVANTAGES:

- It avoids Sparsity problems.
- Reduces the information Loss and the bias of the inference due to the multiple estimates.
- Effectively track the 2G and 3G Speed of networking information.

2.3 LITERATURE SURVEY:

2.3.1 Big Data in Cloud Computing, 2014

Author: R. Saranya, V. Muthukumar and N. Mary

Methodology:

Cloud computing provides a reliable, fault-tolerant, available and scalable environment to harbour big data distributed management systems. Within the context of this paper we present an overview of both technologies and cases of success when integrating big data and cloud frameworks.

Advantage:

- Processes are done in cloud storage so it is highly confidential. The unauthorized person doesn't be able to access the data.

Disadvantage:

- The value hidden in an isolated source is limited.

2.3.2 The rise of “big data” on cloud computing: Review and open research issues, 2015

Author: I. A. T. Hashem, I. Yaqoob, N. Badrul Anuar, S. Mokhtar, A. Gani
and S. U. Khan

Methodology:

Cloud computing is a powerful technology to perform massive-scale and complex computing. It eliminates the need to maintain expensive computing hardware, dedicated space, and software. Massive growth in the scale of data or big data generated through cloud computing has been observed. Addressing big data is a challenging and time-demanding task that requires a large computational infrastructure to ensure successful data processing and analysis.

Advantage:

- Effectively extract and process the data.

Disadvantage:

- It is critical to delineate some of challenges for big data applications. An effort to improve the data quality of electronic records is necessary.

2.3.3 Game Theory Based Trust Model for Cloud Environment, 2015

Author: K. Gokulnath and R. Uthariaraj

Methodology:

The aim of this work is to propose a method to establish trust at bootload level in cloud computing environment. This work proposes a game theoretic based approach for achieving trust at bootload level of both resources and users perception. Thus, time complexity and space complexity are handled efficiently. Experiments were carried out to compare and contrast the performance of the conventional methods and the proposed method. Several metrics like execution time, accuracy, error identification, and undesirability of the resources were considered.

Advantage:

- It increases the result accuracy.
- Robustness.

Disadvantage:

- Effective analytics are required.

2.3.4 A virtual cloud computing provider for mobile devices, 2015

Author: G. Huerta-Canepa and D. Lee,

Methodology:

Our technique relies on well-established cryptographic primitives, combining them in a unique way to meet military mission specific security and resiliency requirements. Specifically, we create MDFFS, a distributed mobile file system using erasure coding, Shamir's threshold secret sharing, and the symmetric AES block cipher. The resulting system provides two important properties: (1) data at rest is protected even after total compromise of up to k devices, and (2) data is replicated within an infrastructure less ad hoc network and, as such, resilient to device outages. We implement MDFFS on Android mobile devices and achieve ≈ 10 Mbps throughput in real-world performance experiments, suggesting that MDFFS is suitable for a variety of practical workloads.

Advantage:

- It increases the result accuracy.
- Robustness.

Disadvantage:

- Doesn't efficient for heavy workloads.

2.3.5 Survey on Anomaly Detection using Data Mining Techniques, 2015

Author: S. Agrawal and J. Agrawal

Methodology:

The data when transferred or stored is primed exposed to attack. Although various techniques or applications are available to protect data, loopholes exist. Thus to analyze data and to determine various kind of attack data mining techniques have emerged to make it less vulnerable. Anomaly detection uses these data mining techniques to detect the surprising behaviour hidden within data increasing the chances of being intruded or attacked.

Advantage:

- This approach is similar to other measures such as antivirus software, firewalls and access control scheme
- Conventionally, these systems have been classified as a signature detection system, an anomaly detection system or a hybrid
- Detection system

Disadvantage:

- Computation time exceeds

CHAPTER 3

SYSTEM DIAGRAMS

3.1 SYSTEM ARCHITECTURE:

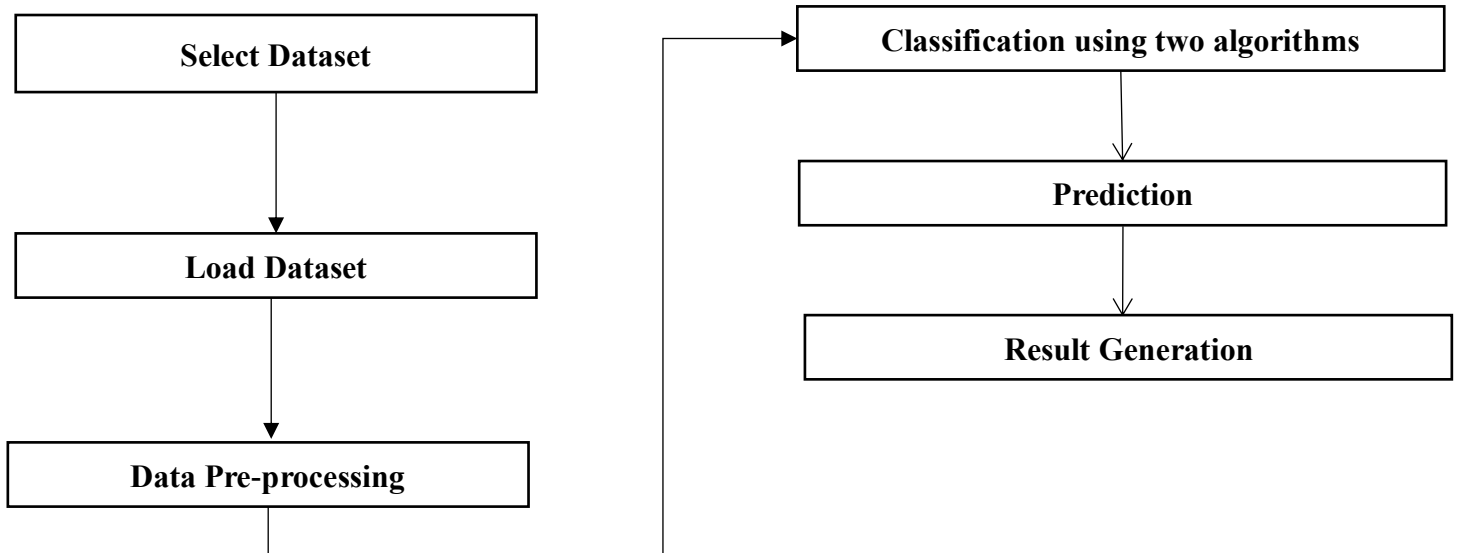


FIGURE 3.1: SYSTEM ARCHITECTURE

3.2 FLOW DIAGRAM

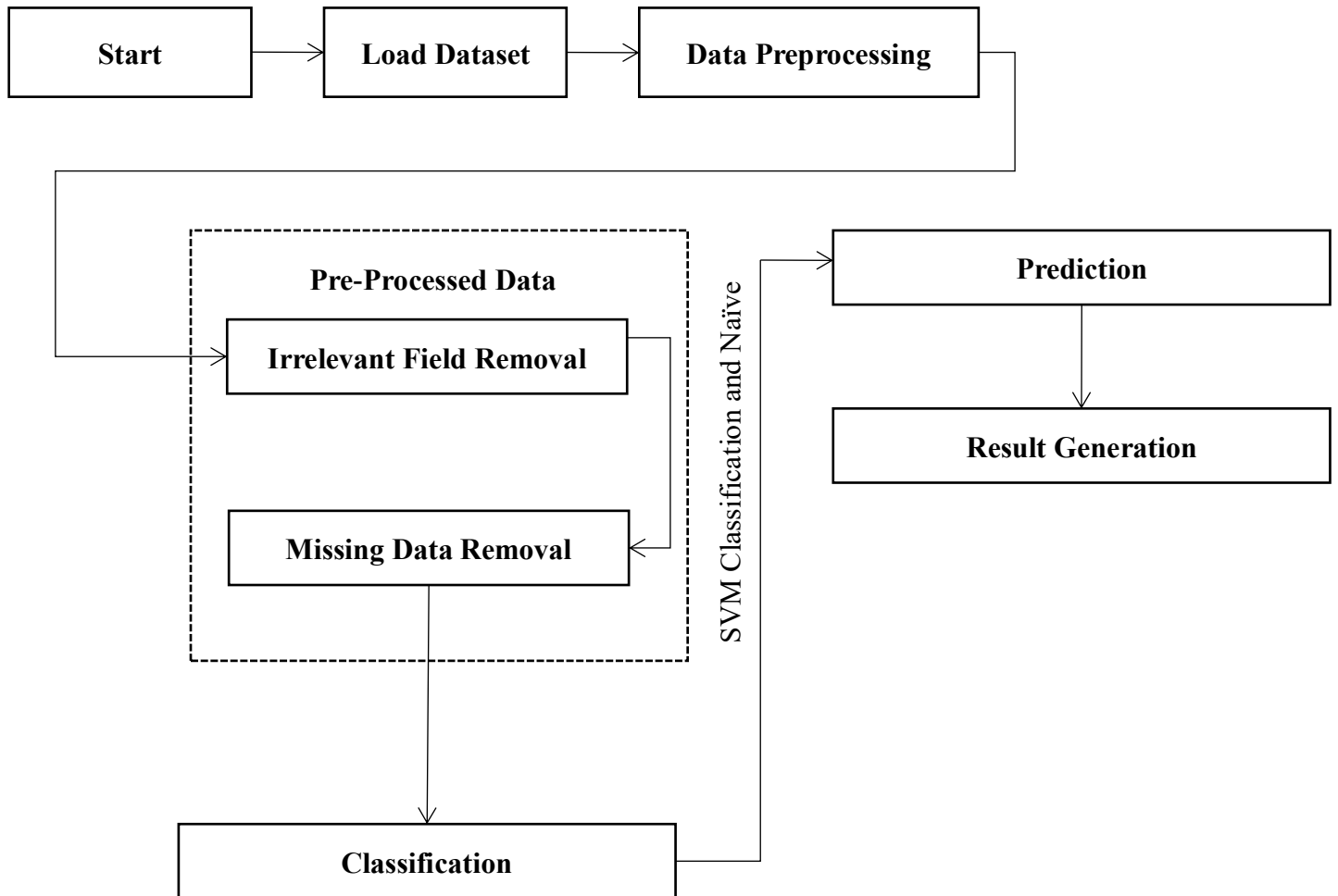


FIGURE 3.2: FLOW DIAGRAM

3.3 UML DIAGRAMS:

3.3.1 USE CASE DIAGRAM:

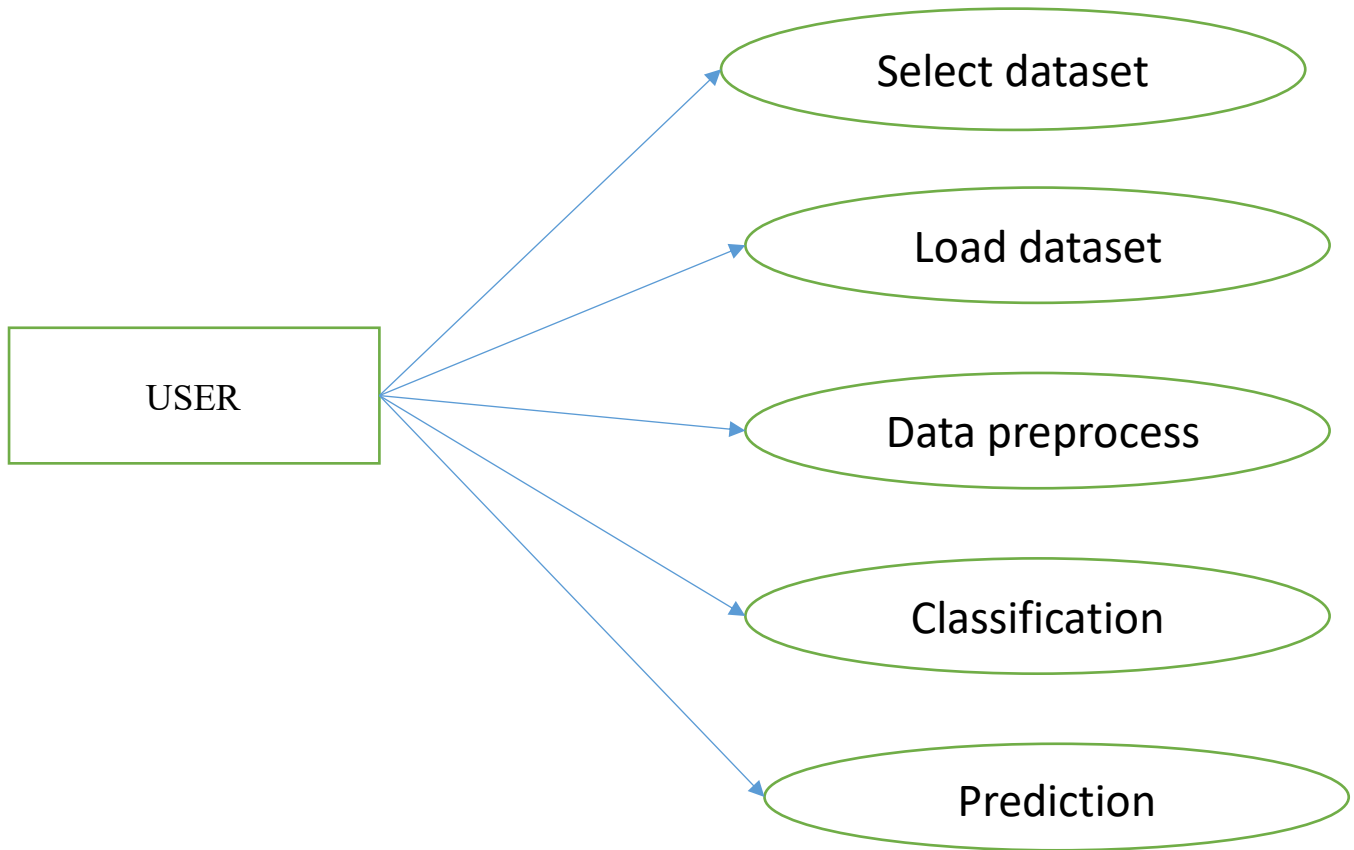


FIGURE 3.3.1: USE CASE DIAGRAM

3.3.2 CLASS DIAGRAM:

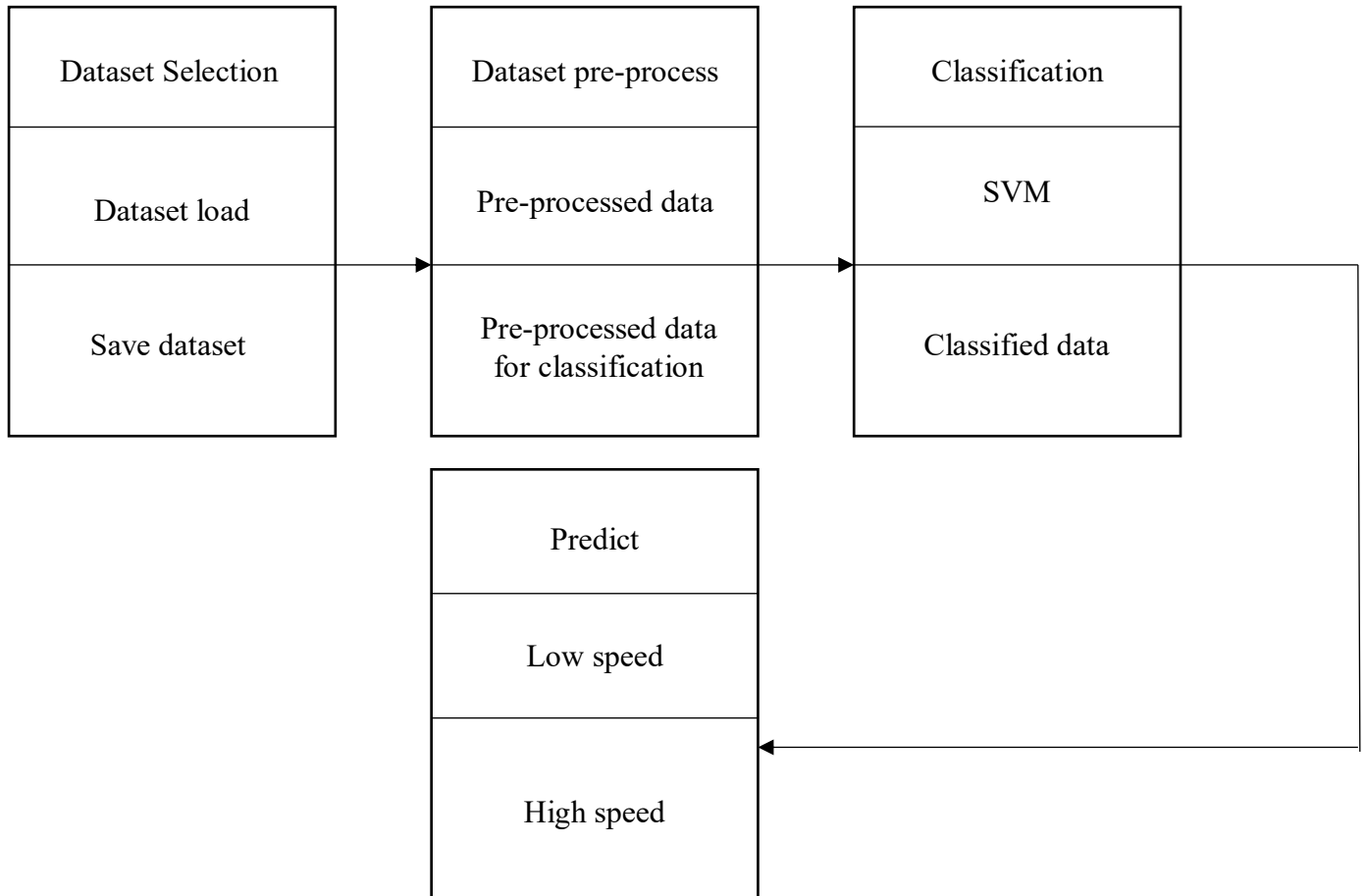


FIGURE 3.3.2: CLASS DIAGRAM

3.3.3 SEQUENCE DIAGRAM:

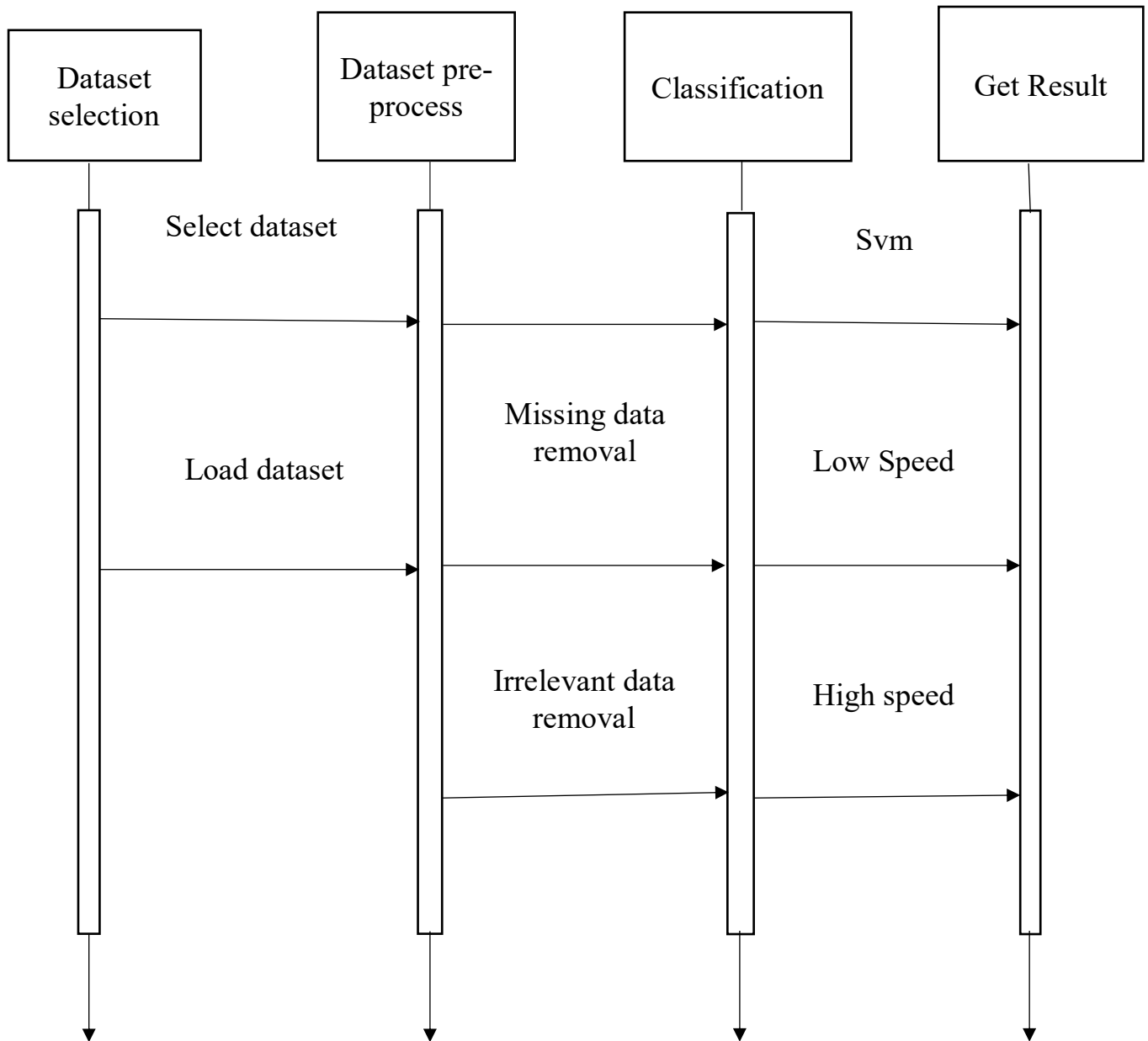


FIGURE 3.3.3: SEQUENCE DIAGRAM

3.3.4 ER DIAGRAM:

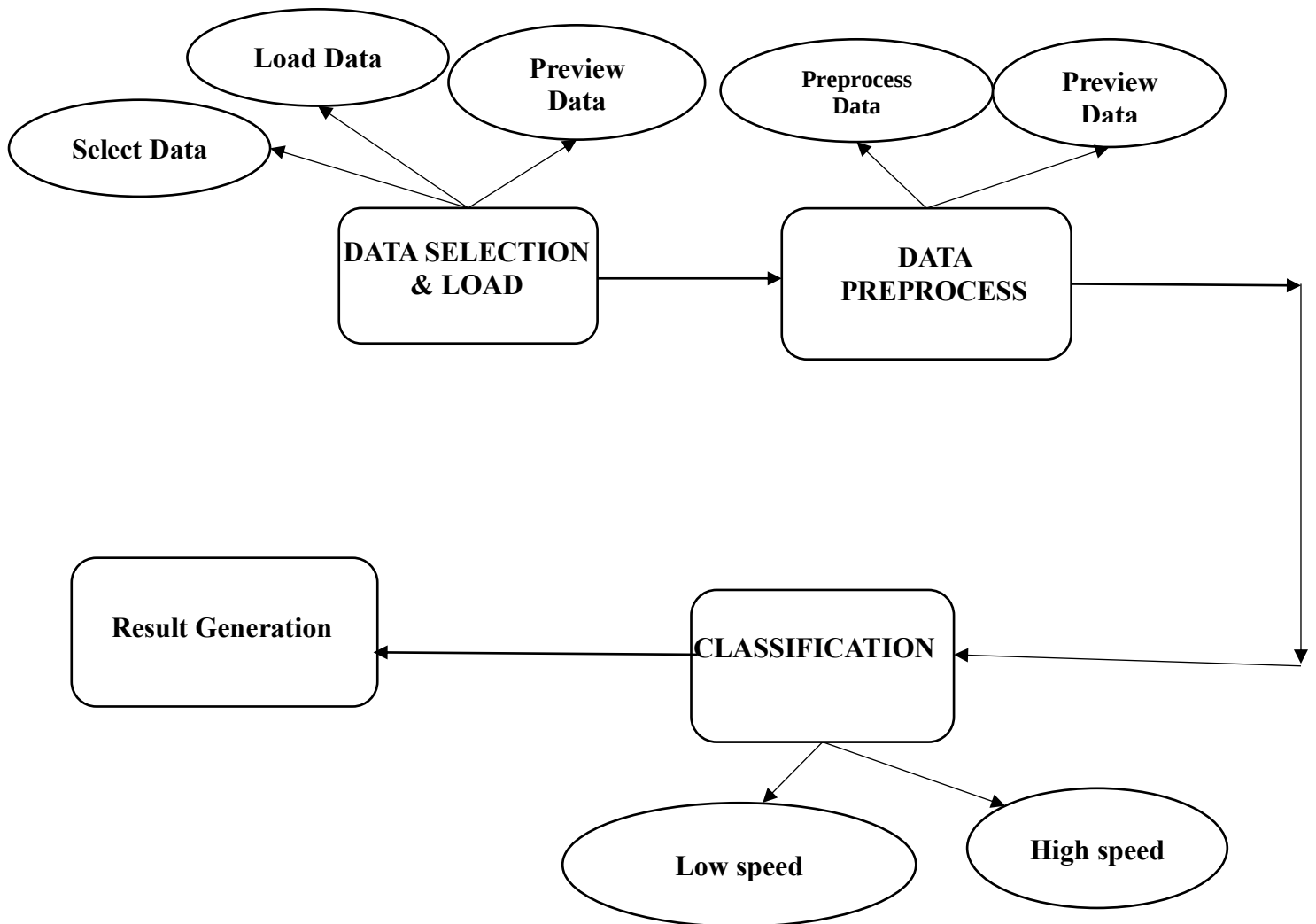


FIGURE 3.3.4: SEQUENCE DIAGRAM

CHAPTER 4

IMPLEMENTATION

4.1 MODULES:

- Select and Load Dataset
- Data Pre-processing
- Classification
- Prediction
- Result Generation

4.2 MODULES DESCRIPTION:

DATA SELECTION AND LOADING

- Data selection is the process of selecting the appropriate data set for processing.
- Here we use the dataset which contains the fields of latitude, longitude and speed of mobile data in each location
- The selected dataset is going to be used for tracking and classifying the mobile data speed in each location.

DATA PREPROCESSING

- The Data pre-processing is the process of detecting, correcting or removing, corrupt or inaccurate records from the dataset.
- The records which provide the incorrect classification results are detected and removed from the dataset.
- In this process, we are going to delete the records that contain empty fields.

CLASSIFICATION

- Classification is the process of classifying the mobile data based on it's speed in each location.
- SVM Classification algorithm is used for classifying the data based on the data speed in each location.
- In machine learning, support vector machines are supervised learning models with associated learning algorithms that analyze data used for classification and regression analysis.
- Here we classify the dataset by using the SVM Classifier and it would classify and give the speed of the network
- The goal of classification is to accurately predict the target class for each case in the data.
- In spite of their apparently over-simplified assumptions, naive Bayes classifiers have worked quite well in many real-world situations, famously document classification and spam filtering.
- They require a small amount of training data to estimate the necessary parameters.
- Naive Bayes learners and classifiers can be extremely fast compared to more sophisticated methods.
- The decoupling of the class conditional feature distributions means that each distribution can be independently estimated as a one dimensional distribution.
- This in turn helps to alleviate problems stemming from the curse of dimensionality.

PREDICTION

- The Final Prediction result is generated based on the network high speed.
- The Networking speed is very high in this particular location will be detected from the dataset.
- The Final Prediction result is high speed and low speed mobile data's location.

RESULT GENERATION

- The overall classification report is generated based on the networking speed in each location.
- The latitude and longitude value that presented in the dataset show the result of networking speed in a particular location.
- The Final result will get stored on to the local cloud storage.
- And also we compare both the algorithm and generate a chart for the performance analysis.

CHAPTER 5

SYSTEM REQUIREMENTS

5.1 HARDWARE SYSTEM REQUIREMENTS:

- Processor : Intel Core i5/i3
- Hard Disk : 200 GB
- Monitor : 18' LED color
- Mouse : ANY MOUSE.
- Keyboard : 110 keys enhanced
- RAM : 3GB

5.2 Software Requirements

- Operating System : Windows 7 / 8 / 10
- Language Used : Java
- Database : My SQL
- User Interface Design : JFrame
- Server : Wampserver

5.3 SOFTWARE DESCRIPTION:

5.3.1 Java

Java is a programming language originally developed by James Gosling at Sun Microsystems (now a subsidiary of Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to byte code (class file) that can

run on any Java Virtual Machine (JVM) regardless of computer architecture. Java is a general-purpose, concurrent, class-based, object-oriented language that is specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere." Java is currently one of the most popular programming languages in use, particularly for client-server web applications.

- **Java Platform**

One characteristic of Java is portability, which means that computer programs written in the Java language must run similarly on any hardware/operating-system platform. This is achieved by compiling the Java language code to an intermediate representation called Java byte code, instead of directly to platform-specific machine code. Java byte code instructions are analogous to machine code, but are intended to be interpreted by a virtual machine (VM) written specifically for the host hardware.

End-users commonly use a Java Runtime Environment (JRE) installed on their own machine for standalone Java applications, or in a Web browser for Java applets. Standardized libraries provide a generic way to access host-specific features such as graphics, threading, and networking.

A major benefit of using byte code is porting. However, the overhead of interpretation means that interpreted programs almost always run more slowly than programs compiled to native executables would. Just-in-Time compilers were introduced from an early stage that compiles byte codes to machine code during runtime.

Just as application servers such as Glass Fish provide lifecycle services to web applications, the Net Beans runtime container provides them to Swing applications. All new shortcuts should be registered in "Key maps/Net Beans" folder. Shortcuts installed INS Shortcuts folder will be added to all key maps, if there is no conflict. It

means that if the same shortcut is mapped to different actions in Shortcut folder and current key map folder (like Key map/Net Beans), the Shortcuts folder mapping will be ignored.

- ✓ Database Explorer Layer API in Database Explorer
- ✓ Loaders-text-dB schema-Actions in Database Explorer
- ✓ Loaders-text-sq.-Actions in Database Explorer
- ✓ Plug-in Registration in Java EE Server Registry

The keyword `public` denotes that a method can be called from code in other classes, or that a class may be used by classes outside the class hierarchy. The class hierarchy is related to the name of the directory in which the `.java` file is located.

The keyword `static` in front of a method indicates a static method, which is associated only with the class and not with any specific instance of that class. Only static methods can be invoked without a reference to an object. Static methods cannot access any class members that are not also static. The keyword `void` indicates that the main method does not return any value to the caller. If a Java program is to exit with an error code, it must call `System. Exit ()` explicitly.

The method name `"main"` is not a keyword in the Java language. It is simply the name of the method the Java launcher calls to pass control to the program. Java classes that run in managed environments such as applets and Enterprise JavaBeans do not use or need a `main ()` method. A Java program may contain multiple classes that have main methods, which means that the VM needs to be explicitly told which class to launch from.

The Java launcher launches Java by loading a given class (specified on the command line or as an attribute in a JAR) and starting its public static void `main(String[])` method. Stand-alone programs must declare this method explicitly. The `String []` parameter is an array of String objects containing any arguments

passed to the class. The parameters to main are often passed by means of a command line.

- **Java a High-level Language**

A high-level programming language developed by Sun Microsystems. Java was originally called OAK, and was designed for handheld devices and set-top boxes. Oak was unsuccessful so in 1995 Sun changed the name to Java and modified the language to take advantage of the burgeoning World Wide Web.

Java source code files (files with a .java extension) are compiled into a format called byte code (files with a .class extension), which can then be executed by a Java interpreter. Compiled Java code can run on most computers because Java interpreters and runtime environments, known as Java Virtual Machines (VMs). Byte code can also be converted directly into machine language instructions by a just-in-time compiler (JIT).

Java is a general purpose programming language with a number of features that make the language well suited for use on the World Wide Web. Small Java applications are called Java applets and can be downloaded from a Web server and run on your computer by a Java-compatible Web browser, such as Netscape Navigator or Microsoft Internet Explorer.

Object-Oriented Software Development using Java: Principles, Patterns, and Frameworks contain a much applied focus that develops skills in designing software-particularly in writing well-designed, medium-sized object-oriented programs. It provides a broad and coherent coverage of object-oriented technology, including object-oriented modeling using the Unified Modeling Language (UML) object-oriented design using Design Patterns, and object-oriented programming using Java.

- **Net Beans**

The **Net Beans Platform** is a reusable framework for simplifying the development of Java Swing desktop applications. The Net Beans IDE bundle for Java SE contains what is needed to start developing Net Beans plug-in and Net Beans Platform based applications; no additional SDK is required.

Applications can install modules dynamically. Any application can include the Update Center module to allow users of the application to download digitally-signed upgrades and new features directly into the running application.

The platform offers reusable services common to desktop applications, allowing developers to focus on the logic specific to their application. Among the features of the platform are:

- User interface management (e.g. menus and toolbars)
- User settings management
- Storage management (saving and loading any kind of data)
- Window management
- Wizard framework (supports step-by-step dialogs)
- Net Beans Visual Library
- Integrated Development Tools

- **J2EE**

A **Java EE application** or a **Java Platform, Enterprise Edition application** is any deployable unit of Java EE functionality. This can be a single Java EE module or a group of modules packaged into an EAR file along with a Java EE application deployment descriptor.

Enterprise applications can consist of the following:

- EJB modules (packaged in JAR files)
- Web modules (packaged in WAR files)
- connector modules or resource adapters (packaged in RAR files)
- Session Initiation Protocol (SIP) modules (packaged in SAR files)
- application client modules
- Additional JAR files containing dependent classes or other components required by the application

Wamp Server

WAMPs are packages of independently-created programs installed on computers that use a Microsoft Windows operating system.

Apache is a web server. MySQL is an open-source database. PHP is a scripting language that can manipulate information held in a database and generate web pages dynamically each time content is requested by a browser. Other programs may also be included in a package, such as php My Admin which provides a graphical user interface for the MySQL database manager, or the alternative scripting languages Python or Perl.

MySQL

The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation.

Open-Free-software source projects that require a full-featured database management system often use MySQL. Applications which use MySQL databases include: TYPO3, Joomla, WordPress, hob, Drupal and other software built on the LAMP software stack.

Platforms and interfaces

Many programming languages with language-specific APIs include libraries for accessing MySQL databases. These include MySQL Connector/Net for integration with Microsoft's Visual Studio (languages such as C# and VB are most commonly used) and the JDBC driver for Java. In addition, an ODBC interface called Mode allows additional programming languages that support the ODBC interface to communicate with a MySQL database, such as ASP or ColdFusion. The MySQL server and official libraries are mostly implemented in ANSI C/ANSI C++.

5.4 TESTING PRODUCTS:

System testing is the stage of implementation, which aimed at ensuring that system works accurately and efficiently before the live operation commence. Testing is the process of executing a program with the intent of finding an error. A good test case is one that has a high probability of finding an error. A successful test is one that answers a yet undiscovered error.

Testing is vital to the success of the system. System testing makes a logical assumption that if all parts of the system are correct, the goal will be successfully achieved. . A series of tests are performed before the system is ready for the user acceptance testing. Any engineered product can be tested in one of the following ways. Knowing the specified function that a product has been designed to from, test can be conducted to demonstrate each function is fully operational. Knowing the internal working of a product, tests can be conducted to ensure that “al gears mesh”, that is the internal operation of the product performs according to the specification and all internal components have been adequately exercised.

5.4.1 UNIT TESTING:

Unit testing is the testing of each module and the integration of the overall system is done. Unit testing becomes verification efforts on the smallest unit of software design in the module. This is also known as ‘module testing’.

The modules of the system are tested separately. This testing is carried out during the programming itself. In this testing step, each model is found to be working satisfactorily as regard to the expected output from the module. There are some validation checks for the fields. For example, the validation check is done for verifying the data given by the user where both format and validity of the data entered is included. It is very easy to find error and debug the system.

5.4.2 INTEGRATION TESTING:

Data can be lost across an interface, one module can have an adverse effect on the other sub function, when combined, may not produce the desired major function. Integrated testing is systematic testing that can be done with sample data. The need for the integrated test is to find the overall system performance. There are two types of integration testing. They are:

- i) Top-down integration testing.
- ii) Bottom-up integration testing.

5.4.3 TESTING TECHNIQUES/STRATEGIES:

- **WHITE BOX TESTING:**

White Box testing is a test case design method that uses the control structure of the procedural design to drive cases. Using the white box testing methods, we Derived test cases that guarantee that all independent paths within a module have been exercised at least once.

- **BLACK BOX TESTING:**

1. Black box testing is done to find incorrect or missing function
2. Interface error
3. Errors in external database access
4. Performance errors.
5. Initialization and termination errors

In ‘functional testing’, is performed to validate an application conforms to its specifications of correctly performs all its required functions. So this testing is also called ‘black box testing’. It tests the external behaviour of the system. Here the engineered product can be tested knowing the specified function that a product has been designed to perform, tests can be conducted to demonstrate that each function is fully operational.

5.4.4 SOFTWARE TESTING STRATEGIES

VALIDATION TESTING:

After the culmination of black box testing, software is completed assembly as a package, interfacing errors have been uncovered and corrected and final series of software validation tests begin validation testing can be defined as many, but a single definition is that validation succeeds when the software functions in a manner that can be reasonably expected by the customer.

USER ACCEPTANCE TESTING:

User acceptance of the system is the key factor for the success of the system. The system under consideration is tested for user acceptance by constantly keeping in touch with prospective system at the time of developing changes whenever required.

OUTPUT TESTING:

After performing the validation testing, the next step is output asking the user about the format required testing of the proposed system, since no system could be useful if it does not produce the required output in the specific format. The output displayed or generated by the system under consideration. Here the output format is considered in two ways. One is screen and the other is printed format. The output format on the screen is found to be correct as the format was designed in the system phase according to the user needs. For the hard copy also output comes out as the specified requirements by the user. Hence the output testing does not result in any connection in the system.

CHAPTER 6

CONCLUSION

- It effectively classifying the mobile data speed information by avoiding the sparsity problems and also this project enhance the performance of the overall tracking and classification results.
- Our system addresses all the constraints of data processing in mobile cloud - energy efficiency, data reliability and security.

CHAPTER 7

FUTURE ENHANCEMENT

- The SVM classification to classify the low speed and high speed network data speed.
- Here we have used Latitude and longitude to predict the locations.
- In future we can use some other algorithm for better and efficient classification.
- Logistic regression algorithm also used to classify the network speed.

CHAPTER 8

SAMPLE CODING

INDEX.java

```
package hadoop;

import javax.swing.UIManager;
import java.util.logging.Level;
import java.util.logging.Logger;
import java.awt.*;

public class start extends javax.swing.JFrame {

    public start() {
        initComponents();
        this.setLocationRelativeTo(null);
    }

    @SuppressWarnings("unchecked")
```

```
// <editor-fold defaultstate="collapsed" desc="Generated Code">

private void initComponents() {

    jPanel1 = new javax.swing.JPanel();

    jLabel1 = new javax.swing.JLabel();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    jPanel1.setBackground(new java.awt.Color(102, 102, 102));

    jLabel1.setFont(new java.awt.Font("Tahoma", 1, 14)); // NOI18N
    jLabel1.setForeground(new java.awt.Color(204, 204, 204));
    jLabel1.setText("Hadoop MapReduce for Mobile Clouds");
    jLabel1.addMouseListener(new java.awt.event.MouseAdapter() {
        public void mouseClicked(java.awt.event.MouseEvent evt) {
            jLabel1MouseClicked(evt);
        }
    });

    javax.swing.GroupLayout jPanel1Layout = new
    javax.swing.GroupLayout(jPanel1);
```

```

jPanel1.setLayout(jPanel1Layout);

jPanel1Layout.setHorizontalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(jPanel1Layout.createSequentialGroup()

.addGap(85, 85, 85)

.addComponent(jLabel1)

.addContainerGap(92, Short.MAX_VALUE))

);

jPanel1Layout.setVerticalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(jPanel1Layout.createSequentialGroup()

.addGap(106, 106, 106)

.addComponent(jLabel1,

javax.swing.GroupLayout.PREFERRED_SIZE, 17,

javax.swing.GroupLayout.PREFERRED_SIZE)

.addContainerGap(136, Short.MAX_VALUE))

);

```

```
        javax.swing.GroupLayout layout = new
javax.swing.GroupLayout(getContentPane());

        getContentPane().setLayout(layout);

        layout.setHorizontalGroup(

layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()

        .addContainerGap(30, Short.MAX_VALUE)

        .addComponent(jPanel1,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)

        .addGap(30, 30, 30))

        );

        layout.setVerticalGroup(

layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()

        .addContainerGap(30, Short.MAX_VALUE)

        .addComponent(jPanel1,
javax.swing.GroupLayout.PREFERRED_SIZE,
```

```
javax.swing.GroupLayout.DEFAULT_SIZE,  
javax.swing.GroupLayout.PREFERRED_SIZE)
```

```
.addGap(30, 30, 30))
```

```
);
```

```
pack();
```

```
}// </editor-fold>
```

```
private void jLabel1MouseClicked(java.awt.event.MouseEvent evt) {
```

```
    // TODO add your handling code here:
```

```
    new browse().setVisible(true);
```

```
    this.hide();
```

```
}
```

```
/**
```

```
 * @param args the command line arguments
```

```
 */
```

```
public static void main(String args[]) {
```

```
    /* Set the Nimbus look and feel */
```

```
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code  
(optional) ">
```

```
/* If Nimbus (introduced in Java SE 6) is not available, stay with the
default look and feel.
```

```
* For details see
```

```
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
```

```
*/
```

```
try {
```

```
    UIManager.setLookAndFeel("com.jtattoo.plaf.mcwin.McWinLookAndFeel");
```

```
    // new Home().setVisible(true);
```

```
} catch (Exception e) {
```

```
    e.printStackTrace();
```

```
}
```

```
//</editor-fold>
```

```
/* Create and display the form */
```

```
java.awt.EventQueue.invokeLater(new Runnable() {
```

```
    public void run() {
```

```
        new start().setVisible(true);
```

```
    }
```

```
});
```

```
}
```

```
// Variables declaration - do not modify

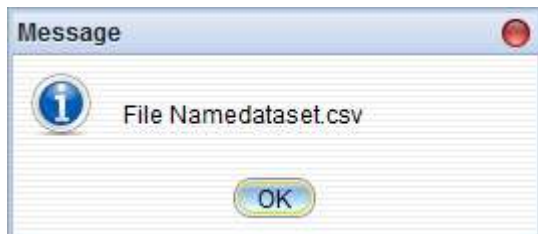
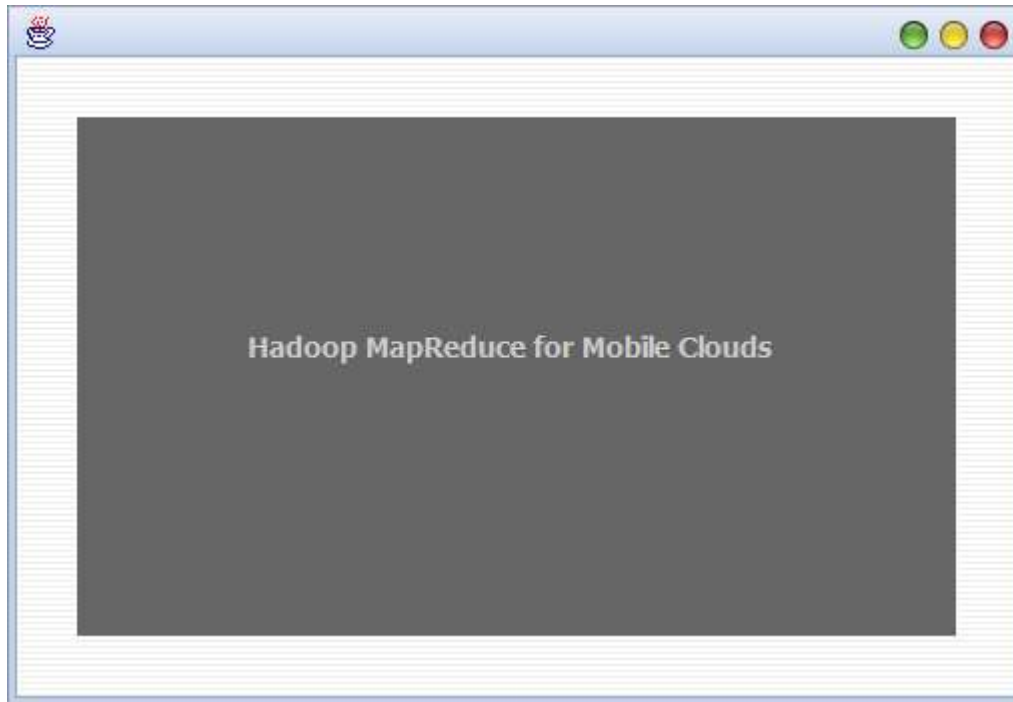
private javax.swing.JLabel jLabel1;

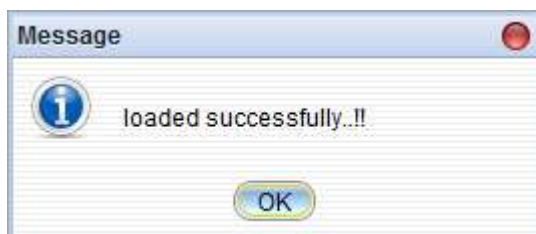
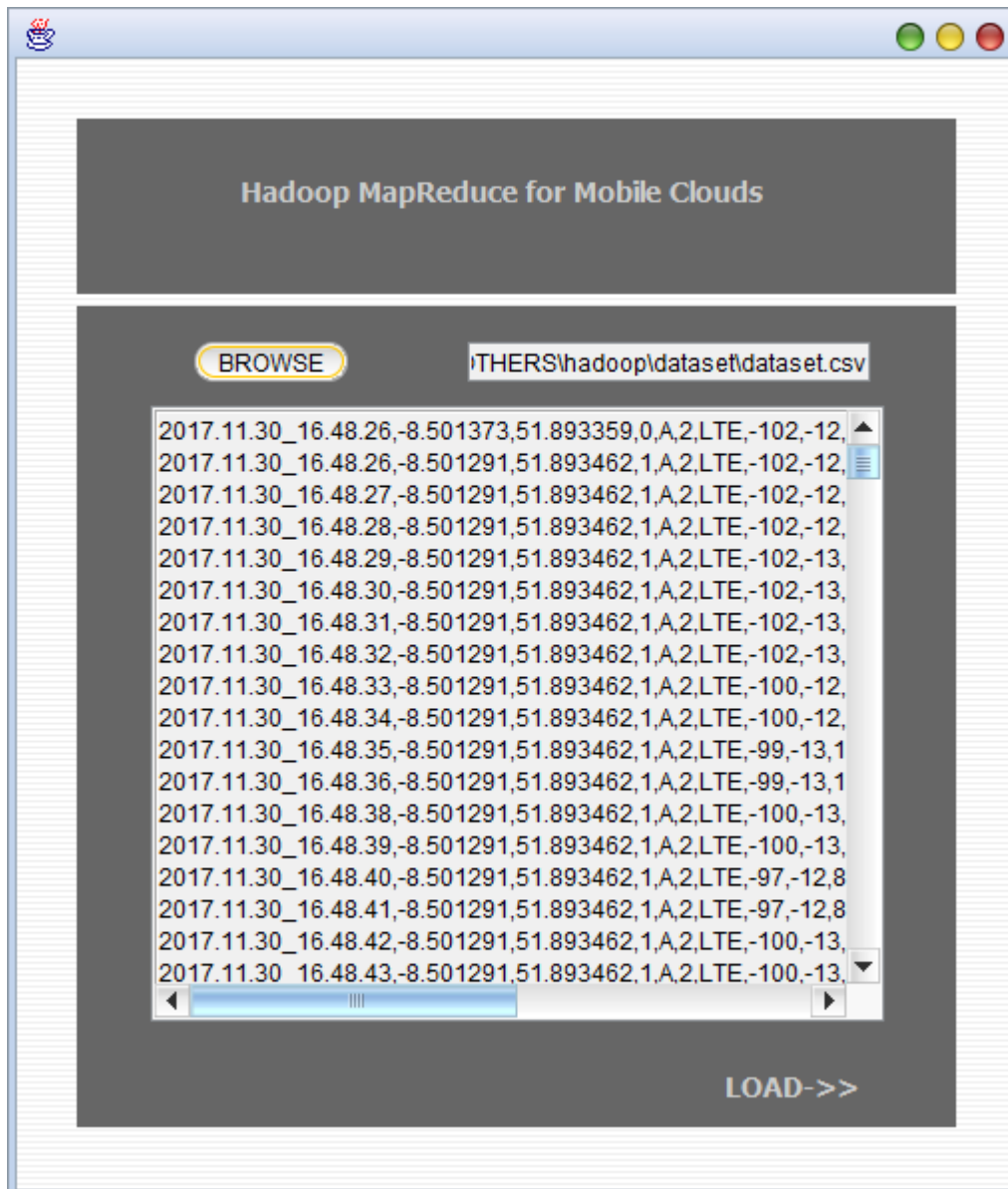
private javax.swing.JPanel jPanel1;

// End of variables declaration
}
```

CHAPTER 9

SAMPLE SCREENSHOTS







Hadoop MapReduce for Mobile Clouds

LOAD

VIEW

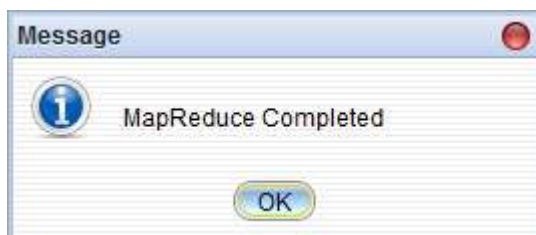
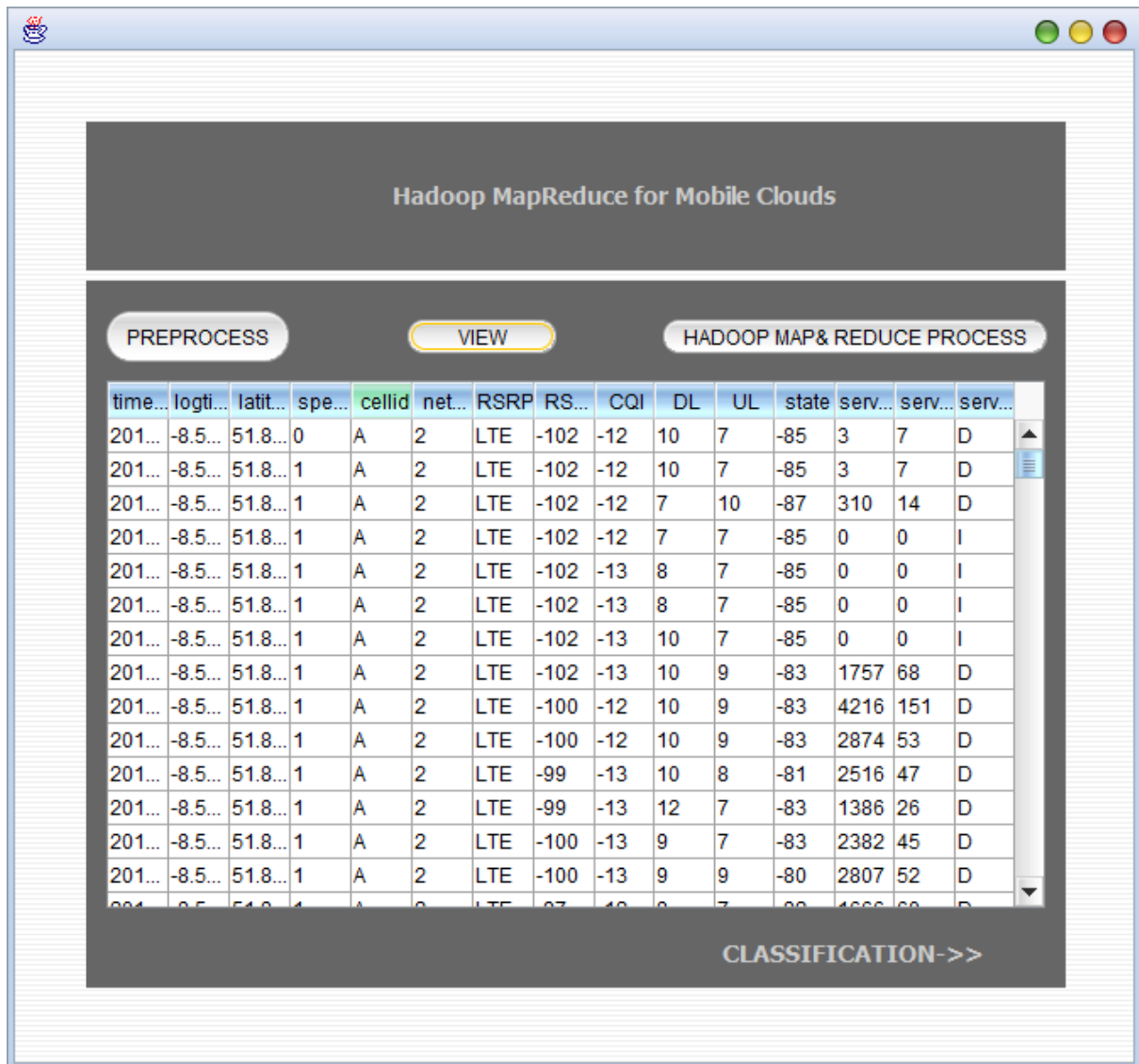
ti...	lo...	lati...	sp...	cel...	ne...	R...	R...	CQI	DL	UL	st...	se...	se...	se...	
20...	-8...	51...	0	A	2	LTE	-1...	-12	10	7	-85	3	7	D	▲
20...	-8...	51...	1	A	2	LTE	-1...	-12	10	7	-85	3	7	D	☰
20...	-8...	51...	1	A	2	LTE	-1...	-12	7	10	-87	310	14	D	
20...	-8...	51...	1	A	2	LTE	-1...	-12	7	7	-85	0	0	I	
20...	-8...	51...	1	A	2	LTE	-1...	-13	8	7	-85	0	0	I	
20...	-8...	51...	1	A	2	LTE	-1...	-13	8	7	-85	0	0	I	
20...	-8...	51...	1	A	2	LTE	-1...	-13	10	7	-85	0	0	I	
20...	-8...	51...	1	A	2	LTE	-1...	-13	10	9	-83	17...	68	D	
20...	-8...	51...	1	A	2	LTE	-1...	-12	10	9	-83	42...	151	D	
20...	-8...	51...	1	A	2	LTE	-1...	-12	10	9	-83	28...	53	D	
20...	-8...	51...	1	A	2	LTE	-99	-13	10	8	-81	25...	47	D	
20...	-8...	51...	1	A	2	LTE	-99	-13	12	7	-83	13...	26	D	▼

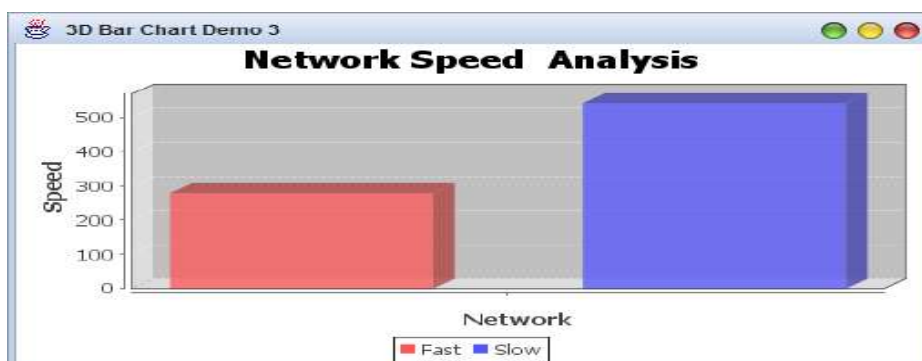
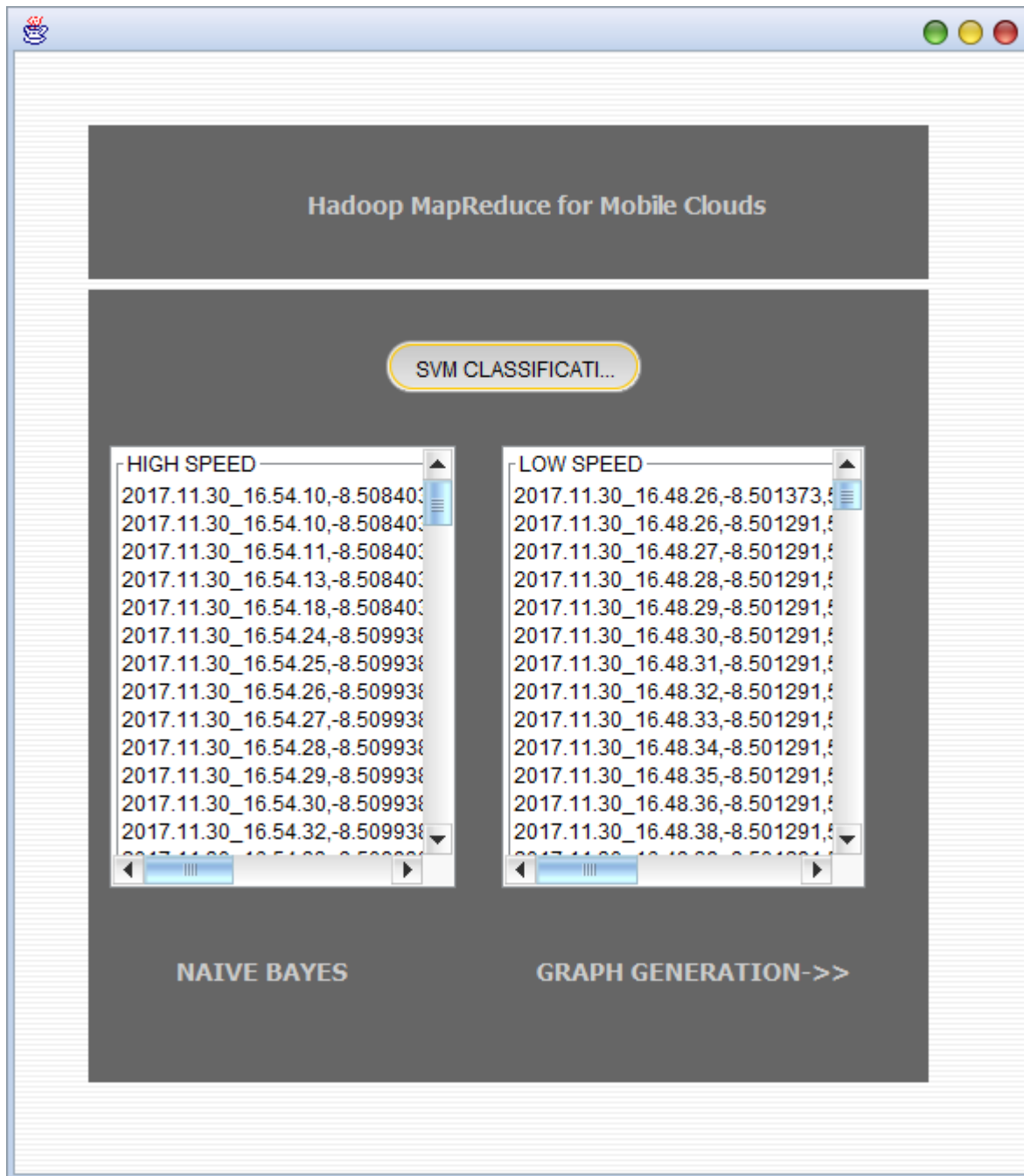
PREPROCESS->>

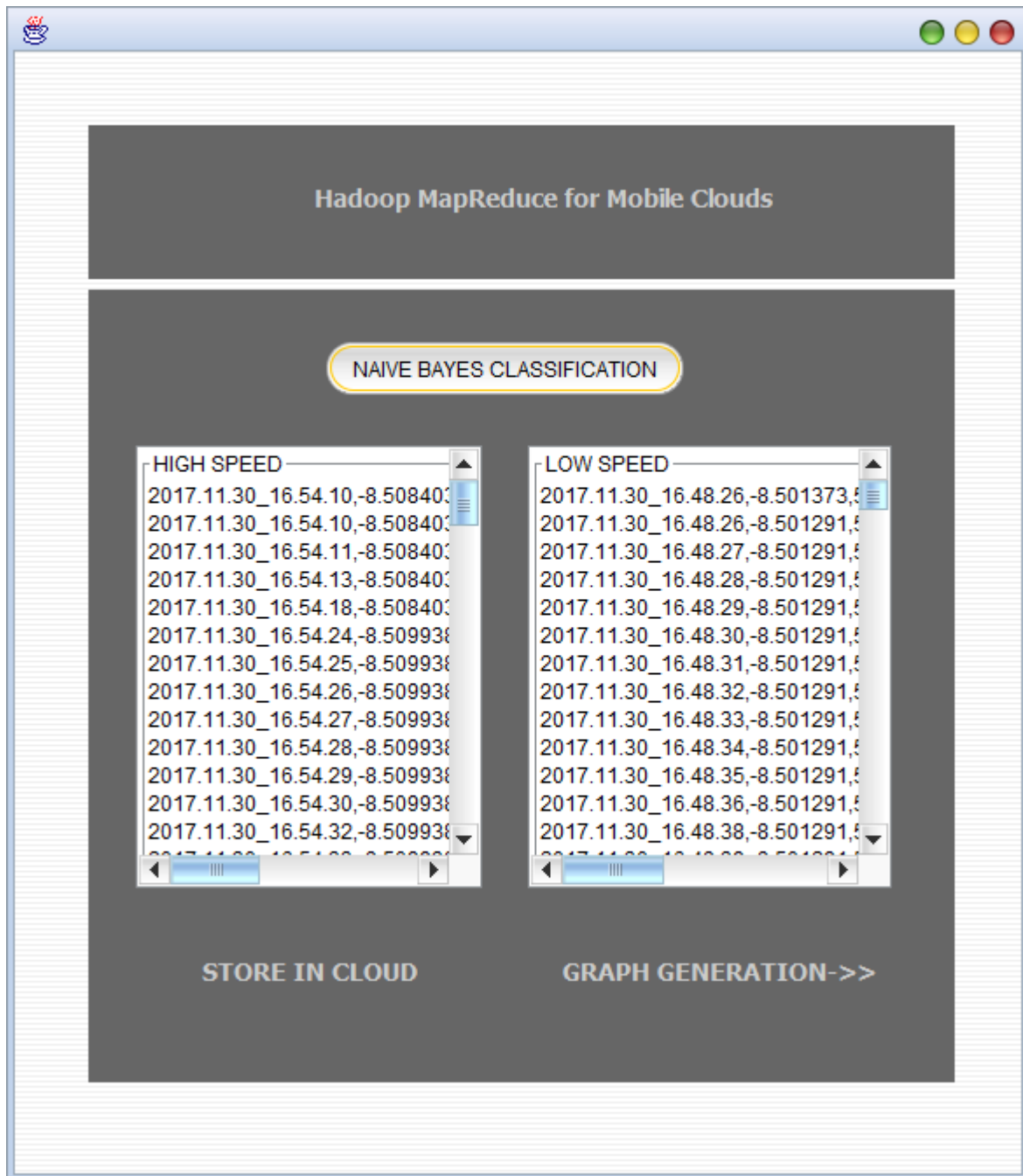
Message

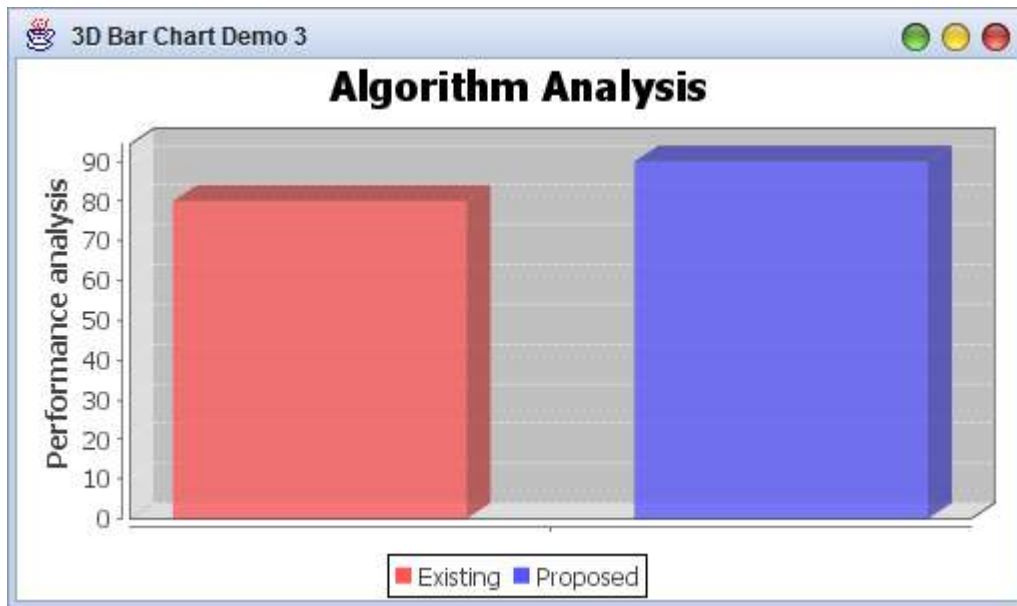


OK





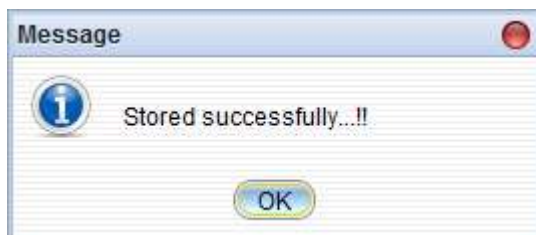
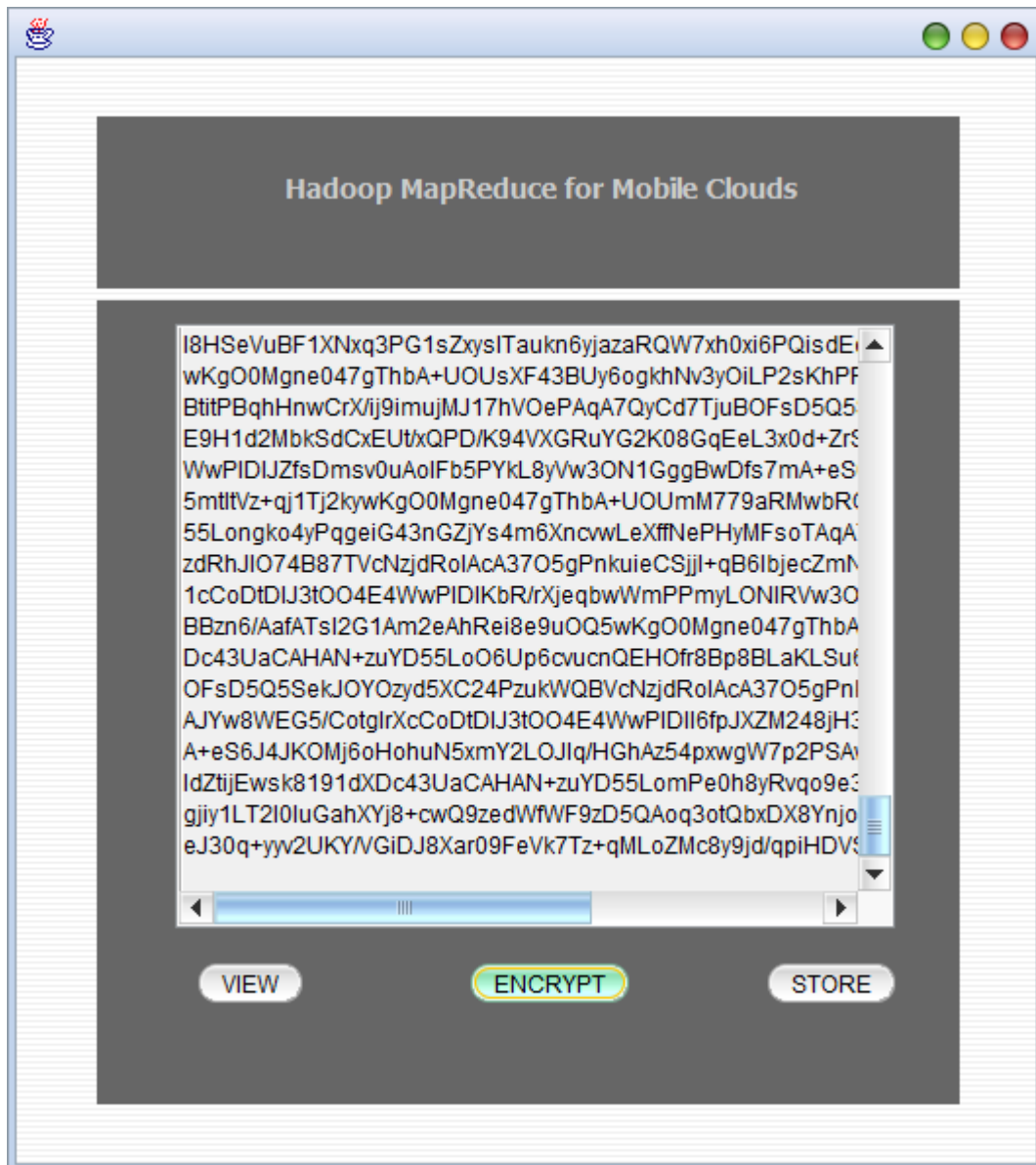


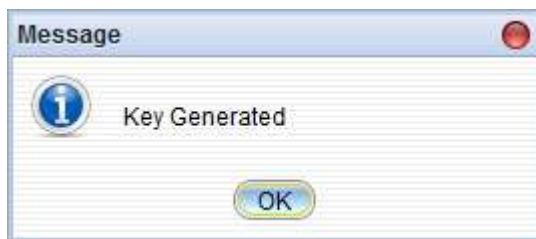
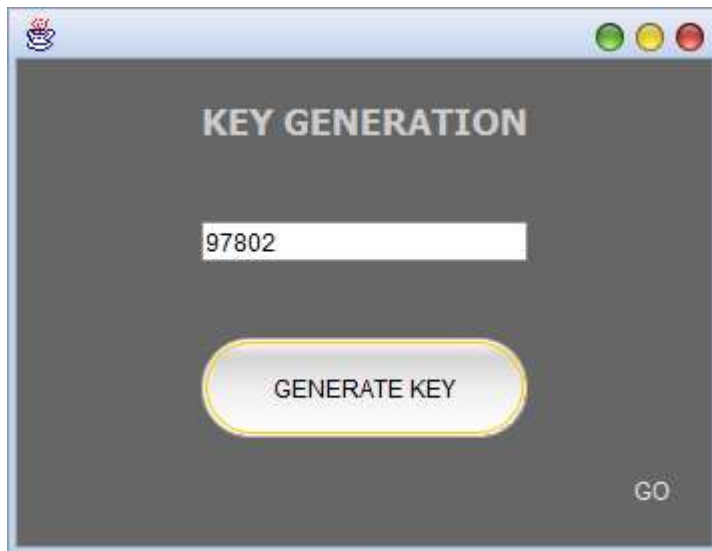


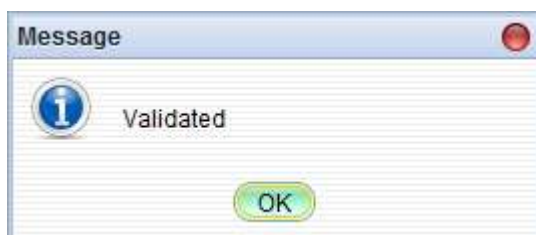
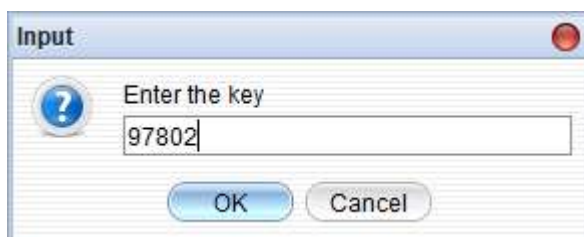
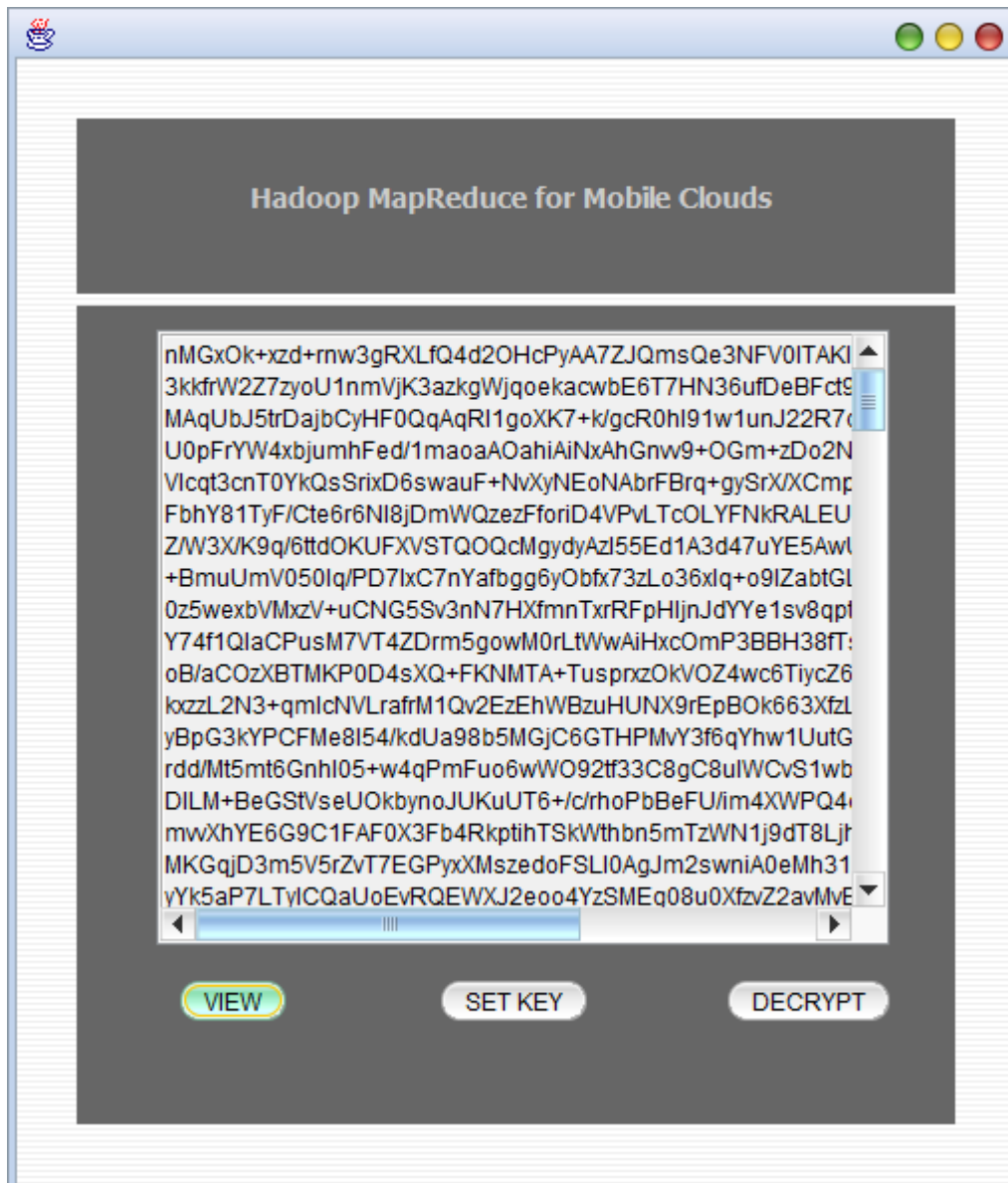
Hadoop MapReduce for Mobile Clouds

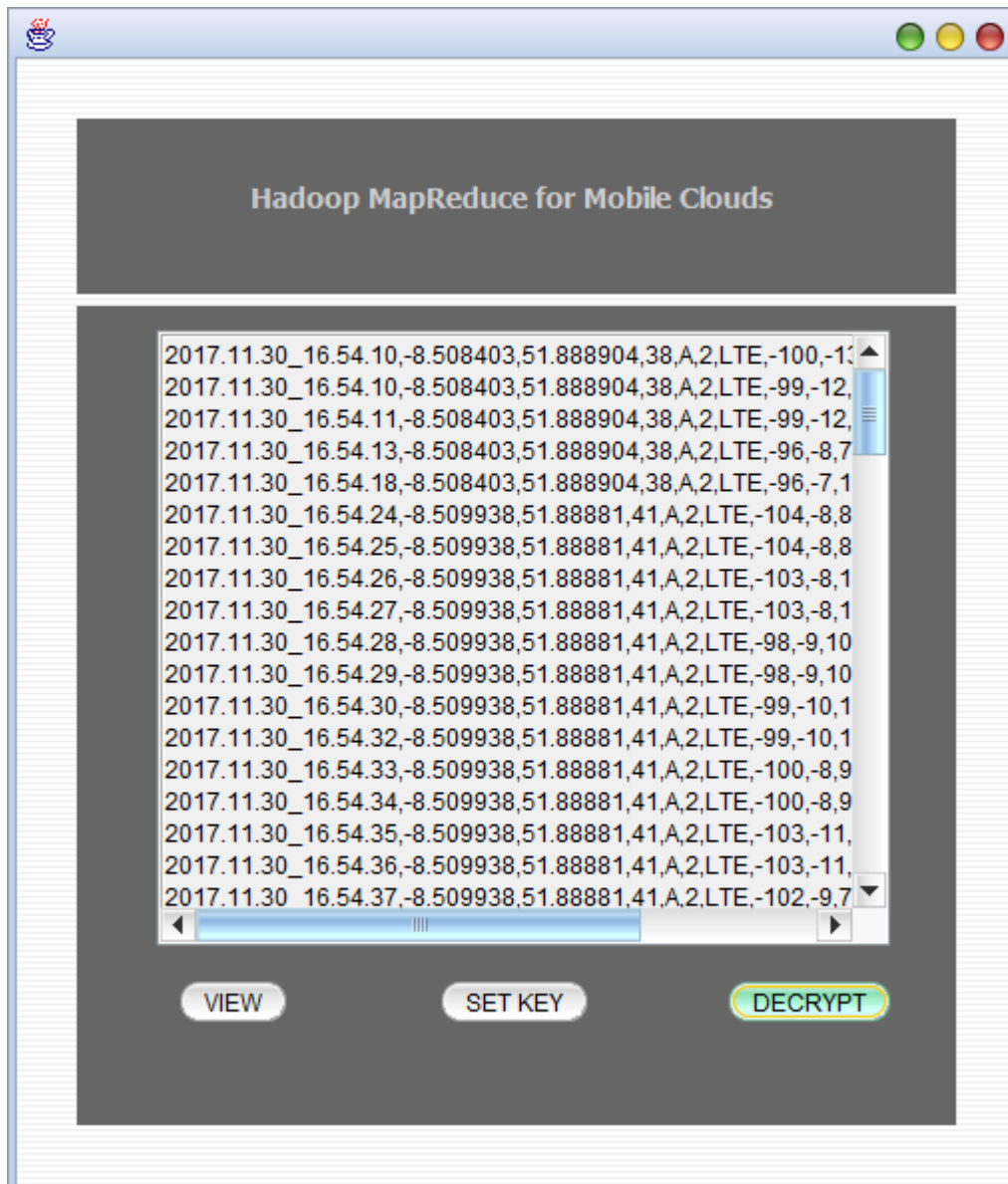
```
2017.11.30_16.54.10,-8.508403,51.888904,38,A,2,LTE,-100,-1,
2017.11.30_16.54.10,-8.508403,51.888904,38,A,2,LTE,-99,-12,
2017.11.30_16.54.11,-8.508403,51.888904,38,A,2,LTE,-99,-12,
2017.11.30_16.54.13,-8.508403,51.888904,38,A,2,LTE,-96,-8,7
2017.11.30_16.54.18,-8.508403,51.888904,38,A,2,LTE,-96,-7,1
2017.11.30_16.54.24,-8.509938,51.88881,41,A,2,LTE,-104,-8,8
2017.11.30_16.54.25,-8.509938,51.88881,41,A,2,LTE,-104,-8,8
2017.11.30_16.54.26,-8.509938,51.88881,41,A,2,LTE,-103,-8,1
2017.11.30_16.54.27,-8.509938,51.88881,41,A,2,LTE,-103,-8,1
2017.11.30_16.54.28,-8.509938,51.88881,41,A,2,LTE,-98,-9,10
2017.11.30_16.54.29,-8.509938,51.88881,41,A,2,LTE,-98,-9,10
2017.11.30_16.54.30,-8.509938,51.88881,41,A,2,LTE,-99,-10,1
2017.11.30_16.54.32,-8.509938,51.88881,41,A,2,LTE,-99,-10,1
2017.11.30_16.54.33,-8.509938,51.88881,41,A,2,LTE,-100,-8,9
2017.11.30_16.54.34,-8.509938,51.88881,41,A,2,LTE,-100,-8,9
2017.11.30_16.54.35,-8.509938,51.88881,41,A,2,LTE,-103,-11,
2017.11.30_16.54.36,-8.509938,51.88881,41,A,2,LTE,-103,-11,
2017.11.30_16.54.37,-8.509938,51.88881,41,A,2,LTE,-102,-9,7
```

VIEW ENCRYPT STORE









REFERENCES

- [1] S. Huchton, G. Xie, and R. Beverly, "Building and evaluating a k-resilient mobile distributed file system resistant to device compromise," in Proc. MILCOM, 2011.
- [2] G. Huerta-Canepa and D. Lee, "A virtual cloud computing provider for mobile devices," in Proc. of MobiSys, 2010.
- [3] K. Kumar and Y.-H. Lu, "Cloud computing for mobile users: Can offloading computation save energy?" Computer, 2010.
- [4] S. George, Z. Wei, H. Chenji, W. Myounggyu, Y. O. Lee, A. Pazarloglou, R. Stoleru, and P. Barooah, "Distressnet: a wireless ad hoc and sensor network architecture for situation management in disaster response," Comm. Mag., IEEE, 2010.
- [5] J.-P. Hubaux, L. Butty'an, and S. Capkun, "The quest for security in mobile ad hoc networks," in Proc. of MobiHoc, 2001.
- [6] H. Yang, H. Luo, F. Ye, S. Lu, and L. Zhang, "Security in mobile ad hoc networks: challenges and solutions," Wireless Communications, IEEE, 2004.
- [7] C. A. Chen, M. Won, R. Stoleru, and G. Xie, "Resource allocation for energy efficient k-out-of-n system in mobile ad hoc networks," in Proc. ICCCN, 2013.
- [8] C. Chen, M. Won, R. Stoleru, and G. Xie, "Energy-efficient fault-tolerant data storage and processing in dynamic network," in MobiHoc, 2013
- [9] J. Sun, H. Xiong, X. Liu, Y. Zhang, X. Nie, and R. H. Deng, "Lightweight and Privacy-Aware Fine-Grained Access Control for IoT-oriented Smart Health," IEEE Internet of Things Journal, pp. 1–1, 2020.
- [10] K. Shvachko, H. Kuang, S. Radia, and R. Chansler, "The hadoop distributed file system," in Proc. of MSST, 2010.