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

Submitted in partial fulfillment of the requirements for the award
of Bachelor of Technology Degree in Information Technology

By
DIVYA DHARSHINI.V

38120023



DEPARTMENT OF INFORMATION TECHNOLOGY
SCHOOL OF COMPUTING
SATHYABAMA INSTITUTE OF SCIENCE AND
TECHNOLOGY
JEPPIAAR NAGAR, RAJIV GANDHI SALAI,
CHENNAI – 600119. TAMILNADU

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SCHOOL OF COMPUTING

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the Bonafide work of who carried out the project entitled "MASTER ON TIC-TAC-TOE" under our supervision from August 2020 to November 2020.

Internal Guide

Dr. BEVISH JINILA.Y,

Head of the Department

Dr. R. Subhashini M.E., Ph.D.,

Submitted for Viva voce Examination held on _____

Internal Examiner

External Examiner

DECLARATION

I hereby declare that the Project Report entitled “**MASTER ON TIC-TAC-TOE**” done by me under the guidance of Dr. BEVISH JINILA.Y, at Sathyabama Institute of Science and Technology (Deemed to be University), Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai - 600119 is submitted in partial fulfillment of the requirements for the award of Bachelor of Technology degree in Information Technology.

DATE: 26/01/2021

Place: Chennai

SIGNATURE OF THE CANDIDATE

ACKNOWLEDGEMENT

I am pleased to acknowledge our sincere thanks to Board of management of **SATHYABAMA** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

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During the above period, the performance was good & we wish great success in all your future endeavours.

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No-31, 1st Floor, Alagesan Street, Tambaram West, Chennai-45.

Office : 044-42077204 | +91-8122266653

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ABSTRACT

MASTER ON TIC-TAC-TOE

In Tic-Tac-Toe of the classic game is built on computer-based flat form using python. The primary goal for this project is to create a game based on python Tic-Tac-Toe 3x3 game that show two players on who will win and who will lose the game .it is a best gameplay practices: (1) attempt to win, (2) make a key move, and (3) make an irregular move. To make the game more fun and more winnable at easier, and the gameplay is fast, balanced, and enjoyable. This Game project is written in Python. The project file contains python script (TicTacToe.py). This is a simple GUI based strategy board game that is very easy to understand and use. All the playing rules are the same just like we play in real time tic-tac-toe. This is a simple multiplayer game.we will capture mouse coordinates and identify the block where we need to mark 'X' or 'O'. Then we will check if the user wins the game or not.

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LIST OF ABBREVIATIONS

ABBREVIATIONS

GUI

Tkit

EXPANSION

graphical user interface

tkinter

CHAPTER 1
INTRODUCTION

1.1 GENERAL

Python is easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to object-oriented programming. Python's elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.

1.2 OUTLINE OF THE PROJECT

Tkinter is the standard GUI library for Python. Python when combined with Tkinter provides a fast and easy way to create GUI applications. Tkinter provides a powerful object-oriented interface to the Tk GUI toolkit. Tkinter provides various controls, such as buttons, labels and text boxes used in a GUI application. These controls are commonly called widgets. There are currently 15 types of widgets in Tkinter.

CHAPTER 2

AIM AND SCOPE

2.1 AIM

The aim of this project is to develop a Tic-Tac-Toe game for mobile device. The game is supposed to consist of a multi-player game (two players on their mobile devices, playing against each other).

2.2 PROBLEM STATEMENT

After the game has been completed, the program should congratulate the winner by name. The players should then have the option to play again. If they decide to play again, then the program should keep track of the number of times each player has won and display that information at the end of each game. You may not assume that any input the user provides you is initially valid.

2.3 SCOPE

Tic-tac-toe is a very popular game, so let's implement an automatic Tic-tac-toe game using Python. The game is automatically played by the program and hence, no user input is needed. Still, developing a automatic game will be lots of fun. Python libraries are used to build this game. Instead of asking the user to put a mark on the board, code randomly chooses a place on the board and put the mark. It will display the board after each turn unless a player wins. If the game gets draw, then it returns -1.

CHAPTER 3

SYSTEM ANALYSIS

3.1 GENERAL

3.1.1 PYTHON

Python is an interpreted, high-level and general-purpose programming language.
Created by Guido van Rossum and first released in 1991, Python's design philosophy

emphasizes code readability with its notable use of significant whitespace. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

3.1.2 GUI(graphical user interface)

Python offers multiple options for developing GUI (Graphical User Interface). Out of all the GUI methods, tkinter is the most commonly used method. It is a standard Python interface to the Tk GUI toolkit shipped with Python. Python with tkinter is the fastest and easiest way to create the GUI applications. Creating a GUI using tkinter is an easy task.

3.1.3 USER INTERFACE

The user interface (UI) is the point of human-computer interaction and communication in a device. This can include display screens, keyboards, a mouse and the appearance of a desktop. It is also the way through which a user interacts with an application or a website

3.1.4 PYTHON WEB FRAMEWORK

A Web framework is a collection of packages or modules which allow developers to write Web applications or services without having to handle such low-level details as protocols, sockets or process/thread management. The Python web framework used in this project is Flask.

3.2 SOFTWARES USED

3.2.1 tkinter

Python provides the standard library Tkinter for creating the graphical user interface for desktop based applications.

Developing desktop based applications with python Tkinter is not a complex task. An empty Tkinter top-level app can be created by using the following steps.

To create a tkinter app:

1. Importing the module – tkinter
2. Create the main window (container)
3. Add any number of widgets to the main window
4. Apply the event Trigger on the widgets.

3.2.2 PROGRAMMING LANGUAGES USED

Python

Python is a general-purpose interpreted, interactive, object-oriented, and high-level programming language. It was created by Guido van Rossum during 1985- 1990. Like Perl, Python source code is also available under the GNU General Public License (GPL). This **tutorial** gives enough understanding on **Python programming** language.

3.4 PROJECT DESCRIPTION

TIC TAC TOE is written in Python programming language. This python project is based on GUI board-based game. It is straightforward to understand and use by the players. In this, all the gaming rules are the same as the real pen & paper game. This Python-based game would reduce the manual struggle of the players that are to carry pen & pencil and lots of paper with you to play this game. This will provide lots of TIC TAC TOE matches without any error.

This project consists of developing and implementing a computer program that plays tic-tac-toe against another player. Tic-tac-toe is a two player game (one of them being your computer program). The two players take turns putting marks on a 3x3 board. The player who first gets 3 of his/her marks in a row (vertically, horizontally, or diagonally) *wins* the game, and the other *loses* the game. The game is played by two individuals. First, we draw a board with a 3x3 square grid. The first player chooses 'X' and draws it on any of the square grid, then it's the chance of the second player to draw 'O' on the available spaces. Like this, the players draw 'X' and 'O' alternatively on the empty spaces until a player succeeds in drawing 3 consecutive marks either in the horizontal, vertical or diagonal way. Then the player wins the game otherwise the game draws when all spots are filled.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 SYSTEM REQUIREMENTS

❖ Software requirement:

- front end: Python3
- Back end: Python 3.6.0 interpreter
- Graphical User Interface (GUI) Toolkit

❖ Hardware components:

- Processor – Intel core i3 or above
- Hard Disk – 128 GB
- Memory – 1 GB RAM.

Limitations:

1. GUI is not so attractive.
2. Only mouse interface is implemented, keyboard is not activated in the game

CHAPTER 5

CONCLUSION AND FUTURE WORK

5.1 CONCLUSION

- The time complexity for implementing **tic tac toe in python** is $O(1)$.
- If both players play optimally, the result will end in a draw.
- You can add much exciting stuff to this project like you can ask to play again, or you can add a scoreboard displaying the number of wins of each player. You can ask the players for their names. There is so much you can do to improve your code and hence yourself. Try to run this tic tac toe in python in your local system, and we are there for you if you face any problem.

5.2 FUTURE PLAN

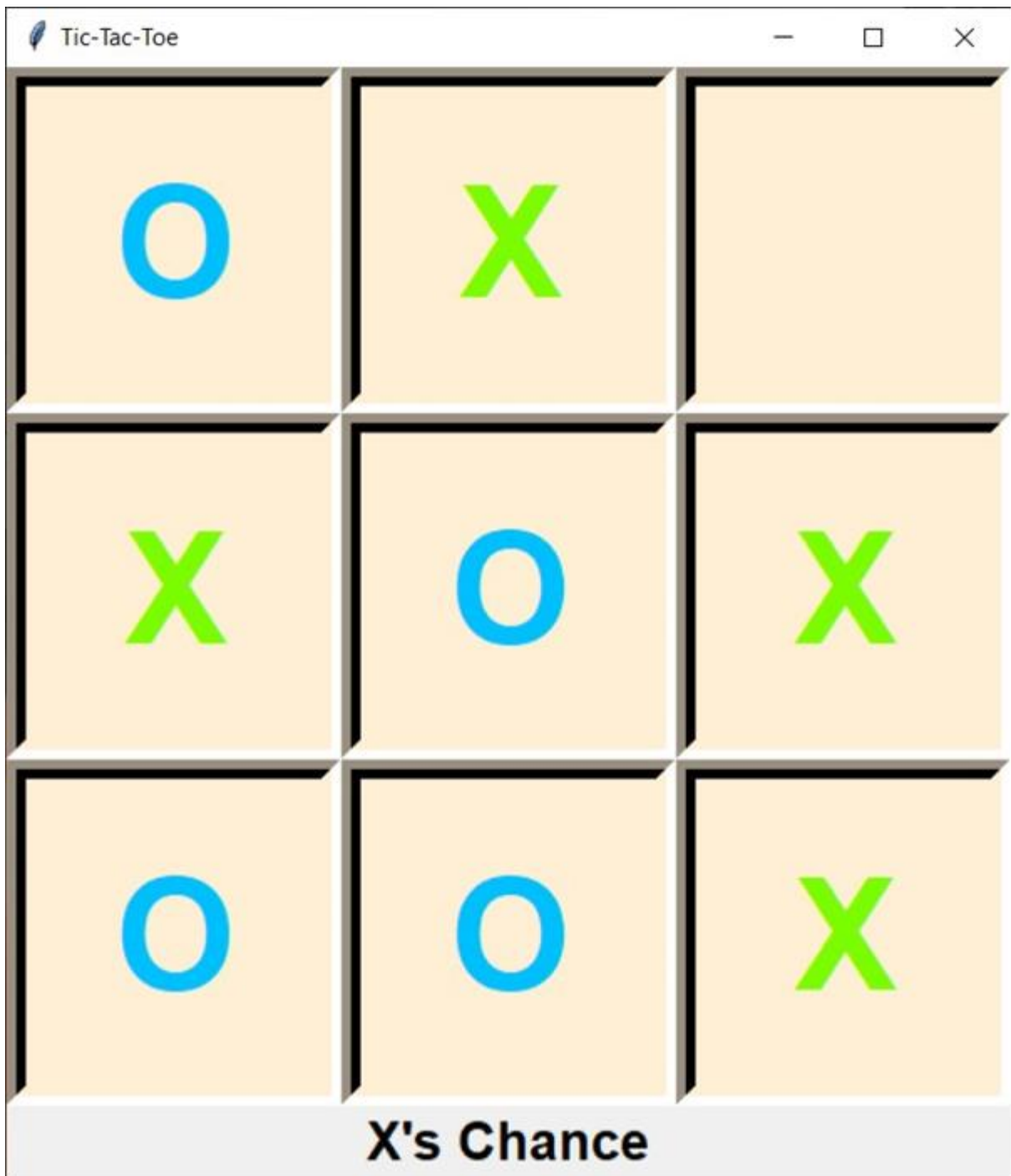
1. Keyboard functions will be added.
2. We want to design more complex boards for the game in future

5.3 REFERENCES

- 1) <https://www.python.org/downloads/release/python-391/>
- 2) <https://www.python.org/>

APPENDIX

A. OUTPUT



Source code:

```
from tkinter import *
from tkinter import messagebox
import random as r

def button(frame):      #Function to define a button
    b=Button(frame,padx=1,bg="papaya whip",width=3,text="
",font=('arial',60,'bold'),relief="sunken",bd=10)
    return b
def change_a():         #Function to change the operand for the next player
    global a
    for i in ['O','X']:
        if not(i==a):
            a=i
            break
def reset():            #Resets the game
    global a
    for i in range(3):
        for j in range(3):
            b[i][j]["text"]=" "
            b[i][j]["state"]=NORMAL
    a=r.choice(['O','X'])
def check():            #Checks for victory or Draw
    for i in range(3):
        if(b[i][0]["text"]==b[i][1]["text"]==b[i][2]["text"]==a or
b[0][i]["text"]==b[1][i]["text"]==b[2][i]["text"]==a):
            messagebox.showinfo("Congrats!!","""+a+"" has won")
            reset()
        if(b[0][0]["text"]==b[1][1]["text"]==b[2][2]["text"]==a or
b[0][2]["text"]==b[1][1]["text"]==b[2][0]["text"]==a):
            messagebox.showinfo("Congrats!!","""+a+"" has won")
            reset()

    elif(b[0][0]["state"]==b[0][1]["state"]==b[0][2]["state"]==b[1][0]["state"]==b[1][1]["state"]==b[1][2]
["state"]==b[2][0]["state"]==b[2][1]["state"]==b[2][2]["state"]==DISABLED):
        messagebox.showinfo("Tied!!","The match ended in a draw")
        reset()
def click(row,col):
    b[row][col].config(text=a,state=DISABLED,disabledforeground=colour[a])
    check()
    change_a()
    label.config(text=a+"s Chance")
##### Main Program #####
root=Tk()              #Window defined
root.title("Tic-Tac-Toe") #Title given
a=r.choice(['O','X'])   #Two operators defined
colour={'O':"deep sky blue",'X':"lawn green"}
b=[[[],[],[]]]
for i in range(3):
    for j in range(3):
```

```
        b[i].append(button(root))
        b[i][j].config(command= lambda row=i,col=j:click(row,col))
        b[i][j].grid(row=i,column=j)
label=Label(text=a+"s Chance",font=('arial',20,'bold'))
label.grid(row=3,column=0,columnspan=3)
root.mainloop()
```