# MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

## GOVERNMENT POLYTECHNIC, AWASARI (KH)

## TAL-AMBEGAON, DIST – PUNE – 412405

### ACADEMIC YEAR : 2021-22

- **COURSE NAME : JAVA PROGRAMMING**

- **COURSE CODE :22412**

- **BRANCH      : INFORMATION TECHNOLOGY (SY)**

- **TOPIC NAME :To develop a Tic-Tac-Toe Game using Java.**

## DETAILS OF TEAM MEMBERS:

| SR. NO. | NAMES OF GROUP MEMBERS | ROLL NO. | ENROLLMENT NO. |
|---------|------------------------|----------|----------------|
| 1 | PhasaleTejaswini Shamrao | 20IF237 | 2010510384 |
| 2 | RanawareShriraj Dattatray | 20IF238 | 2010510385 |
| 3 | Raundal Tejas Dadaji | 20IF239 | 2010510386 |
| 4 | Raut Kaustubh Ajay | 20IF240 | 2010510387 |
| 5 | Sarode Kajal Subhash | 20IF241 | 2010510388 |
| 6 | Shedage Shubham Kalyan | 20IF242 | 2010510389 |

GUIDANCE BY :

MRS. P. S. GHODE

GROUP LEADER :

Kaustubh Raut

# PART A – MICRO PROJECT PROPOSAL

## Aims / benefits of micro-project :

**Aim:** To develop a  Tic-Tac-Toe  Game in Java.

**Benefits:**
- First we understand concept of Java Language very well.

- We learn how to use  Classes , Objects in Java Programming.

- We learn how to write java program and run on any machine.

- We learn how to apply various concepts  in Java.

## Course Outcomes (COs) : -

**CO1:** Develop program using Object Oriented methodology in Java.
**CO4:** Implement Exception Handling.

## Proposed Methodology: -

- First we select the topic Tic-Tac-Toe Game with the help of Teacher.
- Then we installed JDK and set JDK path using command prompt.
- Then we started programming in Notepad.
- After that we completed our programming and Run it properly.
- We tested our coding and Ensured the Tic-Tac-Toe Game is running successfully.

**Action Plan: -**

| Sr. No. | details of activity | planned start date | Planned Finished date | Responsible Name of members |
|---|---|---|---|---|
| 1 | **Group formation and allocation of  Micro project title** | | | **All team members** |
| 2 | **Information search and required analysis.** | | | **All team members** |
| 3 | **Actual project / assembly project** | | | **All team members** |
| 4 | **Testing of project** | | | **All team Members** |
| 5 | **Acquire the printout and submit it.** | | | **All team members** |
| 6 | **Submission of project.** | | | **All team members** |

**Resources Required: -**

| Sr.no. | Name of Resource | Specification | Qty. | Remarks |
|---|---|---|---|---|
| 1 | Software | Notepad++, JDK. | - | |
| 2 | Websites | - | - | |
| 3 | Book | **Programming with java** | - | |

**Date :-**      /    /

**TEACHER**                    **PRINCIPAL**                    **H.O.D**

**MRS. P. S. GHODE**        **DR. D.R. NANDANWAR**        **DR.D.N.REWADKAR**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**GOVERNMENT POLYTECHNIC AWASARI (KHURD)**



**SEMESTER —IV (2021-22)**

**CERTIFICATE**

This is to certify the following students of semester Fourth of Diploma in Information Technology of Institute :**Government polytechnic, Awasari (kh)** ( Code : 1051 ) has completed the micro project satisfactorily in subject- **JAVA PROGRAMMING(22412)** for the academic year 2021-22 as prescribed in the curriculum.

| SR. NO. | NAMES OF GROUP MEMBERS | ROLL NO. | ENROLLMENT NO. |
|---------|------------------------|----------|----------------|
| 1 | PhasaleTejaswiniShamrao | 20IF237 | 2010510384 |
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TEACHER               PRINCIPAL                    H.O.D

MRS. P. S. GHODE        DR. D.R. NANDANWAR        DR.D.N.REWADKAR

# Part – B Micro-Project Report

**Aim:**   To develop a  Tic-Tac-Toe  Game in Java.

## Rationale :-

As we know, this is generation is a computer generation. Most of the kids play computer/mobile games instead of playing outdoor games.
Thus we just created a simple game by using java programming language.
We created a simple Tic-Tac-Toe Game which is easy to play.
Tic-Tac Toe is very easy to understand and play. We will get assigned with One Character either X or O. Then we have to choose slot where we want to place our character.

## Course Outcomes (COs) : -

**CO1:** Develop program using Object Oriented methodology in Java.
**CO4:** Implement Exception Handling.

## Proposed Methodology: -

- First we select the topic Tic-Tac-Toe Game with the help of Teacher.
- Then we installed JDK and set JDK path using command prompt.
- Then we started programming in Notepad.
- After that we completed our programming and Run it properly.
- We tested our coding and Ensured the Tic-Tac-Toe Game is running successfully.

## ➢ Actual Resources Required: -

| Sr.no. | Name of Resource | Specification | Qty. | Remarks |
|---|---|---|---|---|
| 1 | Software | **Notepad++, JDK.** | **-** | |
| 2 | Websites | **-** | - | |
| 3 | Book | **Programming with java** | - | |

## ❖ *Program Code For Tic-Tac-Toe Game :*

```java
import java.util.*;
public class tictactoegame
{

        static String[] board;
        static String turn;
        static String checkWinner()
        {
                for (int a = 0; a < 8; a++)
                {
                        String line = null;

                        switch (a)
                        {
                        case 0:
                                line = board[0] + board[1] + board[2];
                                break;
                        case 1:
                                line = board[3] + board[4] + board[5];
                                break;
                        case 2:
                                line = board[6] + board[7] + board[8];
                                break;
                        case 3:
                                line = board[0] + board[3] + board[6];
                                break;
                        case 4:
                                line = board[1] + board[4] + board[7];
                                break;
                        case 5:
```

```java
                                        line = board[2] + board[5] + board[8];
                                        break;
                        case 6:
                                        line = board[0] + board[4] + board[8];
                                        break;
                        case 7:
                                        line = board[2] + board[4] + board[6];
                                        break;
                        }

                        if (line.equals("XXX"))
                        {
                                        return "X";
                        }


                        else if (line.equals("OOO"))
                        {
                                        return "O";
                        }
                }

                for (int a = 0; a < 9; a++)
                {
                        if (Arrays.asList(board).contains(String.valueOf(a + 1)))
                        {
                                        break;
                        }
                        else if (a == 8)
                        {
                                        return "draw";
                        }
                }

                System.out.println( turn + "'s turn; enter a slot number to place " + turn
        + " in:");
```
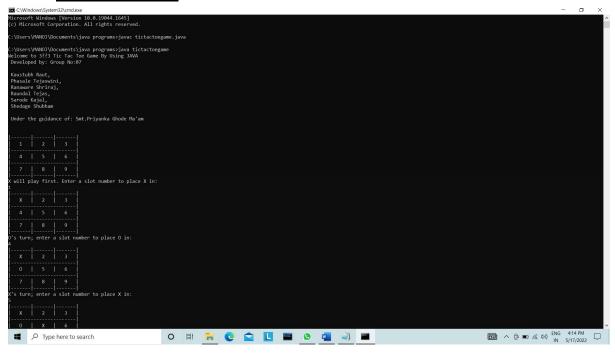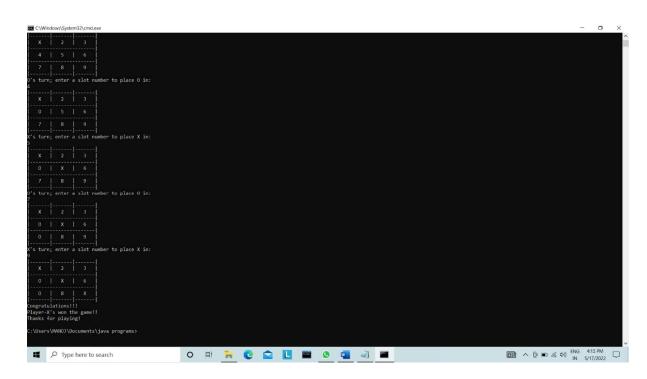
```java
                return null;
        }


        static void printBoard()
        {
                System.out.println("|-------|-------|-------|");
                System.out.println("|   " + board[0] + "  |   " +
                board[1] + "  |   " + board[2]
                                        + "   |");
                System.out.println("|----------------------|");
                System.out.println("|   " + board[3] + "  |   "
                                        + board[4] + "  |   " + board[5]
                                        + "   |");
                System.out.println("|----------------------|");
                System.out.println("|   " + board[6] + "  |   "
                                        + board[7] + "  |   " + board[8]
                                        + "   |");
                System.out.println("|-------|-------|-------|");
        }


        public static void main(String[] args)
        {
                Scanner in = new Scanner(System.in);
                board = new String[9];
                turn = "X";
                String winner = null;

                for (int a = 0; a < 9; a++)
                {
                        board[a] = String.valueOf(a + 1);
                }

                System.out.println("Welcome to 3×3 Tic Tac Toe Game By Using
JAVA");       System.out.println(" Developed by: Group No:07");
        System.out.println("\n Kaustubh Raut,\n Phasale Tejaswini,\n Ranaware
Shriraj,\n Raundal Tejas,\n Sarode Kajal,\n Shedage Shubham");
```

```java
    System.out.println();
System.out.println(" Under the guidance of:\tSmt.Priyanka Ghode Ma'am");
System.out.println();
System.out.println();
        printBoard();

        System.out.println("X will play first. Enter a slot number to place X in:");

        while (winner == null)
        {
                int numInput;
                try {
                        numInput = in.nextInt();
                        if (!(numInput > 0 && numInput <= 9)) {
                                System.out.println("Invalid input; re-enter slot
number:");

                                continue;
                        }
                }
                catch (InputMismatchException e) {
                        System.out.println("Invalid input; re-enter slot number:");
                        continue;
                }

                if (board[numInput - 1].equals(String.valueOf(numInput)))
                {
                        board[numInput - 1] = turn;

                        if (turn.equals("X")) {
                                turn = "O";
                        }
                        else {
                                turn = "X";
                        }

                        printBoard();
```

```java
                            winner = checkWinner();
                    }
                    else {
                            System.out.println("Slot Already Taken; Please Re-enter
Slot Number:");
                    }
            }

            if (winner.equalsIgnoreCase("draw")) {
                    System.out.println("It's a draw! Thanks for playing.");
            }
            else {
                    System.out.println("Congratulations!!!\nPlayer-" + winner + "'s
won the game!! \nThanks for playing!");
            }
        }
}
```
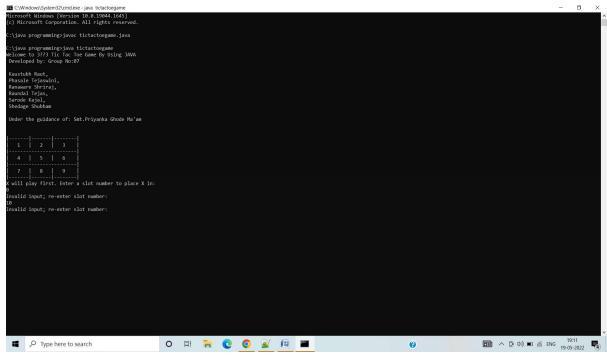
## ➢ **ScreenShots**:

- **After inputting value smaller than 1 & greater than 9 :**



- **When slot is already booked :**