TASK 3

TIC-TAC-TOE GAME

❖ CODE:-

```
// C++ Program to implement the to do list
#include <iostream>
#include <string>
#include <vector>

using namespace std;

// Define Task class
class Task {
private:
    string name; // Task name
    string description; // Task description
    string dueDate; // Task due date
    bool completed; // Task completion status

public:
    // Constructor to initialize a task
    Task(const string& name, const string& description,
         const string& dueDate)
        : name(name)
        , description(description)
        , dueDate(dueDate)
        , completed(false)
    {
    }
```

```
// Getter for task name
string getName() const { return name; }

// Getter for task description
string getDescription() const { return description; }

// Getter for task due date
string getDueDate() const { return dueDate; }

// Getter for task completion status
bool isCompleted() const { return completed; }

// Setter for task name
void setName(const string& name) { this->name = name; }

// Setter for task description
void setDescription(const string& description)
{
    this->description = description;
}

// Setter for task due date
void setDueDate(const string& dueDate)
{
    this->dueDate = dueDate;
}

// Mark the task as completed
```

```
    void markCompleted() { completed = true; }

    // Display task details
    void displayTask() const
    {
        cout << name << " ("
            << (completed ? "Completed" : "Pending")
            << ") - Due: " << dueDate << endl
            << "   Description: " << description << endl;
    }
};

// Define ToDoList class
class ToDoList {
private:
    vector<Task> tasks; // List of tasks

public:
    // Display the menu
    void displayMenu()
    {
        cout
            << "\n---------- To-Do List Menu -----------\n";
        cout << "1. Add Task\n";
        cout << "2. Delete Task\n";
        cout << "3. Display Tasks\n";
        cout << "4. Mark Task as Completed\n";
        cout << "5. Edit Task\n";
        cout << "6. Exit\n";
```

```
    cout << "----------------------------------------"
            "\n";
}

// Add a new task
void addTask()
{
    string name, description, dueDate;
    cout << "Enter task name: ";
    cin.ignore();
    getline(cin, name);
    cout << "Enter task description: ";
    getline(cin, description);
    cout << "Enter task due date (YYYY-MM-DD): ";
    getline(cin, dueDate);

    tasks.emplace_back(name, description, dueDate);
    cout << "Task added successfully!" << endl;
}

// Delete a task
void deleteTask()
{
    if (tasks.empty()) {
        cout << "No tasks to delete!" << endl;
        return;
    }
    cout << "Tasks:" << endl;
    for (int i = 0; i < tasks.size(); ++i) {
```

```
        cout << i + 1 << ". " << tasks[i].getName()
            << endl;
    }
    cout << "Enter the task number to delete: ";
    int taskNumber;
    cin >> taskNumber;
    if (taskNumber >= 1 && taskNumber <= tasks.size()) {
        tasks.erase(tasks.begin() + taskNumber - 1);
        cout << "Task deleted successfully!" << endl;
    }
    else {
        cout << "Invalid task number!" << endl;
    }
}

// Display all tasks
void displayTasks()
{
    if (tasks.empty()) {
        cout << "No tasks to display!" << endl;
        return;
    }
    cout << "Tasks:" << endl;
    for (int i = 0; i < tasks.size(); ++i) {
        cout << i + 1 << ". ";
        tasks[i].displayTask();
    }
}
```

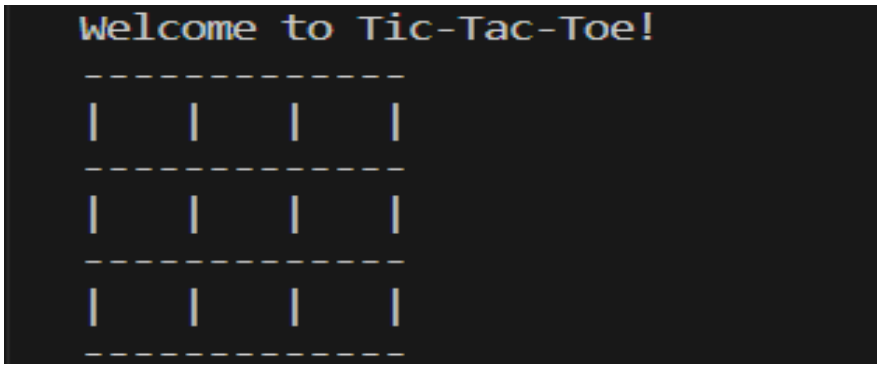
```
// Mark a task as completed
void markTaskCompleted()
{
    if (tasks.empty()) {
        cout << "No tasks to mark as completed!"
            << endl;
        return;
    }
    cout << "Tasks:" << endl;
    for (int i = 0; i < tasks.size(); ++i) {
        cout << i + 1 << ". " << tasks[i].getName()
            << endl;
    }
    cout << "Enter the task number to mark as "
           "completed: ";
    int taskNumber;
    cin >> taskNumber;
    if (taskNumber >= 1 && taskNumber <= tasks.size()) {
        tasks[taskNumber - 1].markCompleted();
        cout << "Task marked as completed!" << endl;
    }
    else {
        cout << "Invalid task number!" << endl;
    }
}

// Edit a task
void editTask()
{
```

```
if (tasks.empty()) {
    cout << "No tasks to edit!" << endl;
    return;
}
cout << "Tasks:" << endl;
for (int i = 0; i < tasks.size(); ++i) {
    cout << i + 1 << ". " << tasks[i].getName()
        << endl;
}
cout << "Enter the task number to edit: ";
int taskNumber;
cin >> taskNumber;
if (taskNumber >= 1 && taskNumber <= tasks.size()) {
    Task& task = tasks[taskNumber - 1];
    string name, description, dueDate;
    cout << "Enter new task name (current: "
        << task.getName() << "): ";
    cin.ignore();
    getline(cin, name);
    cout << "Enter new task description (current: "
        << task.getDescription() << "): ";
    getline(cin, description);
    cout << "Enter new task due date (current: "
        << task.getDueDate() << "): ";
    getline(cin, dueDate);

    task.setName(name);
    task.setDescription(description);
    task.setDueDate(dueDate);
```

```
        cout << "Task updated successfully!" << endl;
    }
    else {
        cout << "Invalid task number!" << endl;
    }
}

// Run the to-do list application
void run()
{
    int choice;
    do {
        displayMenu();
        cout << "Enter your choice: ";
        cin >> choice;

        switch (choice) {
        case 1:
            addTask();
            break;
        case 2:
            deleteTask();
            break;
        case 3:
            displayTasks();
            break;
        case 4:
            markTaskCompleted();
            break;
```

```
            case 5:
                editTask();
                break;
            case 6:
                cout << "Exiting program. Bye!" << endl;
                break;
            default:
                cout << "Invalid choice. Please try again!"
                    << endl;
            }
        } while (choice != 6);
    }
};

// Main function
int main()
{
    // Create a ToDoList object and run the application
    ToDoList toDoList;
    toDoList.run();
    return 0;
}
```

❖ **OUTPUT:-**



```
-------------
Player X, enter row (0-2) and column (0-2): 1 1
-------------
|   |   |   |
-------------
|   | X |   |
-------------
|   |   |   |
```

```
Player O, enter row (0-2) and column (0-2): 0 0
-------------
| O |   |   |
-------------
|   | X |   |
-------------
|   |   |   |
-------------
```

```
-------------
Player X, enter row (0-2) and column (0-2): 1 0
-------------
| O |   |   |
-------------
| X | X |   |
-------------
|   |   |   |
-------------
```

```
Player O, enter row (0-2) and column (0-2): 2 2
-------------
| O |   |   |
-------------
| X | X |   |
-------------
|   |   | O |
-------------
```

```
Player X, enter row (0-2) and column (0-2): 1 2
-------------
| O |   |   |
-------------
| X | X | X |
-------------
|   |   | O |
-------------
```

```
-------------
Player X wins!
-------------
| O |   |   |
-------------
| X | X | X |
-------------
|   |   | O |
-------------
```