CSC-101

LAB PROJECT ICT

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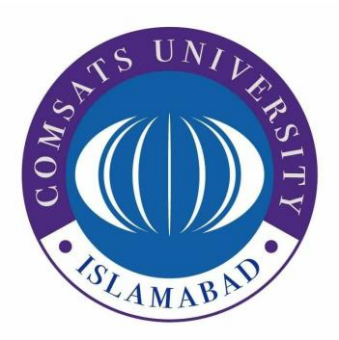

Contents

TABLE OF FIGURES:

TIC-TAC-TOE GAME SOURCE CODE.

The total lines in main file is 329 while the module file for toss is 22 lines and grid files are 9
The code snippets are in parts and their Screen Shots are as follow:

MODULE CODE FILE.

The first two below are the module function which we have imported in our actual game source code. The two-module information is as follows:

Toss Module File Code.

Toss.py > ...

```python
# FROM HERE THE TOSS IS BEEN EXECUTED
def cointoss():
    import random
    user_win=False
    choices=["h","t"]
    player_choice="0"
    toss=random.choice(choices)
# FROM HERE THE DECISION IS APPLIED WETHER THE COMPUTER WON OR USER WON.
    while player_choice not in choices:
        player_choice=input("Enter 'H' for head and 'T' for tail:\n").lower()
        if player_choice>"a" and player_choice<"z":
            player_choice=player_choice

        if player_choice==toss:
            user_win=True
        else:
            user_win=False

        if player_choice not in choices:
            print("Invalid input. Enter again.")

    return user_win
```

Figure 1

Grid Module File Code

Grid.py > ...

```python
#FROM HERE THE GRID IS BEING PRINTED
def printing_board(board):
    print("-------------")
    print( "|",board[0][0] + " | " + board[0][1] + " | " + board[0][2],"|")
    print("----+---+----")
    print( "|",board[1][0] + " | " + board[1][1] + " | " + board[1][2],"|")
    print("----+---+----")
    print( "|",board[2][0] + " | " + board[2][1] + " | " + board[2][2],"|")
    print("-------------")
```

Figure 2

SOURCE CODE FILE.

The following is the start of the actual source code of the project:

Code lines from 1 to 40.

TIC TAC TOE PROJECT BY ABDULLAH AND AHSAN.py > ...

```
1  #_____                    WELCOME TO TIC TAC TOE GAME                    _____#
2  #_____                              BY                                   _____#
3  #_____                    MOHAMED AHSAN WAKIR (FA22-BCT-001)             _____#
4  #_____                         ABDULLAH (FA22-BCT-004)                   _____#
5
6  #                THE MIGHTY CODE STARTS FROM HERE☆*: .。. o(≧▽≦)o .。.:*☆
7  #_____________________________________________________________
8
9
10
11 # WE IMPORTED THE GRID OF THE GAME AND THE TOSS OF THE GAME BELOW.
12 from  Grid import printing_board
13 from  Toss import cointoss
14 # THE CHOICE OF SYMBOL BETWEEN THE COMPUTER AND THE USER.
15 def choosing_symbol():
16     global symbol1; global symbol2
17     symbol=0
18     while symbol not in ["X","O"]:
19         symbol=input("Choose the Symbol, 'X' or 'O':\n").upper()
20         if symbol=="X":
21             symbol1="X"
22             symbol2="O"
23         elif symbol=="O":
24             symbol1="O"
25             symbol2="X"
26         #SYMBOL 1 IS FOR USER AND SYMBOL 2 IS FOR COMPUTER.
27         else:
28             print("Invalid input. Please enter again.")
29 #LIST FOR BOARD
30 def board():
31     global board
32     board = [
33         [" ", " ", " "],
34         [" ", " ", " "],
35         [" ", " ", " "]
36     ]
37
38     return (board)
39
40
```

Figure 3

Codes lines from 41 to 70.

TIC TAC TOE PROJECT BY ABDULLAH AND AHSAN.py > ...

```
41  #WE ARE GETTING THE INPUT FROM THE USER IN NUMERIC VALUES HERE AND THE NUMERIC VALUES ARE BEING CONVERTED INTO SYMBOLS.
42  def player_input(board):
43      global player
44      numbers=["1","2","3","4","5","6","7","8","9"]
45      player=0
46      while player not in numbers:
47
48          player=input("Enter the number of the cell you want to place your cross, 1-9:\n")
49
50          if player=="1" and board[0][0]==" ":
51              board[0][0]=symbol1
52          elif player=="2" and board[0][1]==" ":
53              board[0][1]=symbol1
54          elif player=="3" and board[0][2]==" ":
55              board[0][2]=symbol1
56          elif player=="4" and board[1][0]==" ":
57              board[1][0]=symbol1
58          elif player=="5" and board[1][1]==" ":
59              board[1][1]=symbol1
60          elif player=="6" and board[1][2]==" ":
61              board[1][2]=symbol1
62          elif player=="7" and board[2][0]==" ":
63              board[2][0]=symbol1
64          elif player=="8" and board[2][1]==" ":
65              board[2][1]=symbol1
66          elif player=="9" and board[2][2]==" ":
67              board[2][2]=symbol1
68          else:
69              print("invalid number. Enter again.")
70              player="0"
```

Figure 4

Codes lines from 71 to 126.

TIC TAC TOE PROJECT BY ABDULLAH AND AHSAN.py > ...

```
71  #ALL THE COMPUTER MOVES.
72  def computer_moves(board):
73      # WINNING MOVES FOR THE COMPUTER
74      # WIN AT ROWS.
75      if board[0][0] == board[0][1] == symbol2 and board[0][2]==" ":
76          board[0][2] = symbol2
77      elif board[0][1] == board[0][2] == symbol2 and board[0][0]==" ":
78          board[0][0] = symbol2
79      elif board[0][0] == board[0][2] == symbol2 and board[0][1]==" ":
80          board[0][1] = symbol2
81      elif board[1][0] == board[1][1] == symbol2 and board[1][2]==" ":
82          board[1][2] = symbol2
83      elif board[1][0] == board[1][2] == symbol2 and board[1][1]==" ":
84          board[1][1] = symbol2
85      elif board[1][1] == board[1][2] == symbol2 and board[1][0]==" ":
86          board[1][0] = symbol2
87      elif board[2][0] == board[2][1] == symbol2 and board[2][2]==" ":
88          board[2][2] = symbol2
89      elif board[2][0] == board[2][2] == symbol2 and board[2][1]==" ":
90          board[2][1] = symbol2
91      elif board[2][1] == board[2][2] == symbol2 and board[2][0]==" ":
92          board[2][0] = symbol2
93      #WIN AT ROWS.
94      elif board[0][0] == board[1][0] == symbol2 and board[2][0]==" ":
95          board[2][0] = symbol2
96      elif board[0][0] == board[2][0] == symbol2 and board[1][0]==" ":
97          board[1][0] = symbol2
98      elif board[1][0] == board[2][0] == symbol2 and board[0][0]==" ":
99          board[0][0] = symbol2
100     elif board[0][1] == board[1][1] == symbol2 and board[2][1]==" ":
101         board[2][1] = symbol2
102     elif board[0][1] == board[2][1] == symbol2 and board[1][1]==" ":
103         board[1][1] = symbol2
104     elif board[0][1] == board[2][1] == symbol2 and board[1][1]==" ":
105         board[1][1] = symbol2
106     elif board[1][1] == board[2][1] == symbol2 and board[0][1]==" ":
107         board[0][1] = symbol2
108     elif board[0][2] == board[1][2] == symbol2 and board[2][2]==" ":
109         board[2][2] = symbol2
110     elif board[0][2] == board[2][2] == symbol2 and board[1][2]==" ":
111         board[1][2] = symbol2
112     elif board[1][2] == board[2][2] == symbol2 and board[0][2]==" ":
113         board[0][2] = symbol2
114     #WIN AT DIAGONALS
115     elif board[0][0] == board[1][1] == symbol2 and board[2][2]==" ":
116         board[2][2] = symbol2
117     elif board[0][0] == board[2][2] == symbol2 and board[1][1]==" ":
118         board[1][1] = symbol2
119     elif board[1][1] == board[2][2] == symbol2 and board[0][0]==" ":
120         board[0][0] = symbol2
121     elif board[0][2] == board[1][1] == symbol2 and board[2][0]==" ":
122         board[2][0] = symbol2
123     elif board[1][1] == board[2][0] == symbol2 and board[0][2]==" ":
124         board[0][2] = symbol2
125     elif board[0][2] == board[2][0] == symbol2 and board[1][1]==" ":
126         board[1][1] = symbol2
```

Figure 5

Code lines from 127 to 181.

TIC TAC TOE PROJECT BY ABDULLAH AND AHSAN.py > check_win

```
127   #COUNTER MOVES BY COMPUTER TO THE USER.
128   # COUNTER AT ROWS
129       elif board[0][0] == board[0][1] == symbol1  and board[0][2]==" ":
130       |   board[0][2] = symbol2
131       elif board[0][1] == board[0][2] == symbol1  and board[0][0]==" ":
132       |   board[0][0] = symbol2
133       elif board[0][0] == board[0][2] == symbol1  and board[0][1]==" ":
134       |   board[0][1] = symbol2
135       elif board[1][0] == board[1][1] == symbol1  and board[1][2]==" ":
136       |   board[1][2] = symbol2
137       elif board[1][0] == board[1][2] == symbol1  and board[1][1]==" ":
138       |   board[1][1] = symbol2
139       elif board[1][1] == board[1][2] == symbol1  and board[1][0]==" ":
140       |   board[1][0] = symbol2
141       elif board[2][0] == board[2][1] == symbol1  and board[2][2]==" ":
142       |   board[2][2] = symbol2
143       elif board[2][0] == board[2][2] == symbol1  and board[2][1]==" ":
144       |   board[2][1] = symbol2
145       elif board[2][1] == board[2][2] == symbol1  and board[2][0]==" ":
146       |   board[2][0] = symbol2
147   # COUNTER AT COLUMN.
148       elif board[0][0] == board[1][0] == symbol1  and board[2][0]==" ":
149       |   board[2][0] = symbol2
150       elif board[0][0] == board[2][0] == symbol1  and board[1][0]==" ":
151       |   board[1][0] = symbol2
152       elif board[1][0] == board[2][0] == symbol1  and board[0][0]==" ":
153       |   board[0][0] = symbol2
154       elif board[0][1] == board[1][1] == symbol1  and board[2][1]==" ":
155       |   board[2][1] = symbol2
156       elif board[0][1] == board[2][1] == symbol1  and board[1][1]==" ":
157       |   board[1][1] = symbol2
158       elif board[0][1] == board[2][1] == symbol1  and board[1][1]==" ":
159       |   board[1][1] = symbol2
160       elif board[1][1] == board[2][1] == symbol1  and board[0][1]==" ":
161       |   board[0][1] = symbol2
162       elif board[0][2] == board[1][2] == symbol1  and board[2][2]==" ":
163       |   board[2][2] = symbol2
164       elif board[0][2] == board[2][2] == symbol1  and board[1][2]==" ":
165       |   board[1][2] = symbol2
166       elif board[1][2] == board[2][2] == symbol1  and board[0][2]==" ":
167       |   board[0][2] = symbol2
168   # COUNTER AT DIAGONALS.
169       elif board[0][0] == board[1][1] == symbol1  and board[2][2]==" ":
170       |   board[2][2] = symbol2
171       elif board[0][0] == board[2][2] == symbol1  and board[1][1]==" ":
172       |   board[1][1] = symbol2
173       elif board[1][1] == board[2][2] == symbol1  and board[0][0]==" ":
174       |   board[0][0] = symbol2
175       elif board[0][2] == board[1][1] == symbol1  and board[2][0]==" ":
176       |   board[2][0] = symbol2
177       elif board[1][1] == board[2][0] == symbol1  and board[0][2]==" ":
178       |   board[0][2] = symbol2
179       elif board[0][2] == board[2][0] == symbol1  and board[1][1]==" ":
180       |   board[1][1] = symbol2
181   #-------------------------------------------------------------------
```

Figure 6

Code lines from 182 to 210.

TIC TAC TOE PROJECT BY ABDULLAH AND AHSAN.py > ...

```
182   # COUNTER AT CENTER.
183       elif board[1][1]==" ":
184           board[1][1] = symbol2
185   # COUNTER FOR TRICK MOVES.
186       elif board[1][2]==symbol1 and board[2][2]==" ":
187           board[2][2]=symbol2
188       elif board[1][0]==symbol1 and board[2][1]==" ":
189           board[2][1]=symbol2
190       elif board[0][0]==board[2][2]==symbol1 and board[0][1]==" ":
191           board[0][1] = symbol2
192       elif board[0][2]==board[2][0]==symbol1 and board[0][1]==" ":
193           board[0][1] = symbol2
194   # RANDOM MOVES BY THE COMPUTER AT FIRST MOVE.
195       elif board[0][0]==" ":
196           board[0][0] = symbol2
197       elif board[0][2]==" ":
198           board[0][2] = symbol2
199       elif board[2][0]==" ":
200           board[2][0] = symbol2
201       elif board[2][2]==" ":
202           board[2][2] = symbol2
203       elif board[0][1]==" ":
204           board[0][1] = symbol2
205       elif board[1][0]==" ":
206           board[1][0] = symbol2
207       elif board[1][2]==" ":
208           board[1][2] = symbol2
209       elif board[2][1]==" ":
210           board[2][1] = symbol2
```

Figure 7

Codes line from 211 to 271.

TIC TAC TOE PROJECT BY ABDULLAH AND AHSAN.py > ...

```
211  # CONDITIONS FOR WIN AND DRAW.
212  def check_win(board):
213  
214      symbols=[symbol1, symbol2]
215  
216      if board[0][0]==board[0][1]==board[0][2] and board[0][0]!=" ":
217          if board[0][0]==symbol1:
218              print(f"{name1} won!")
219              return True
220          else:
221              print(f"{name2} won!")
222              return True
223      elif board[1][0]==board[1][1]==board[1][2] and board[1][0]!=" ":
224          if board[1][0]==symbol1:
225              print(f"{name1} won!")
226              return True
227          else:
228              print(f"{name2} won!")
229              return True
230      elif board[2][0]==board[2][1]==board[2][2] and board[2][0]!=" ":
231          if board[2][0]==symbol1:
232              print(f"{name1} won!")
233              return True
234          else:
235              print(f"{name2} won!")
236              return True
237      elif board[0][0]==board[1][0]==board[2][0] and board[0][0]!=" ":
238          if board[0][0]==symbol1:
239              print(f"{name1} won!")
240              return True
241          else:
242              print(f"{name2} won!")
243              return True
244      elif board[0][1]==board[1][1]==board[2][1] and board[0][1]!=" ":
245          if board[0][1]==symbol1:
246              print(f"{name1} won!")
247              return True
248          else:
249              print(f"{name2} won!")
250              return True
251      elif board[0][2]==board[1][2]==board[2][2] and board[0][2]!=" ":
252          if board[0][2]==symbol1:
253              print(f"{name1} won!")
254              return True
255          else:
256              print(f"{name2} won!")
257              return True
258      elif board[0][0]==board[1][1]==board[2][2] and board[0][0]!=" ":
259          if board[0][0]==symbol1:
260              print(f"{name1} won!")
261              return True
262          else:
263              print(f"{name2} won!")
264              return True
265      elif board[0][2]==board[1][1]==board[2][0] and board[0][2]!=" ":
266          if board[0][2]==symbol1:
267              print(f"{name1} won!")
268              return True
269          else:
270              print(f"{name2} won!")
271              return True
```

Figure 8

Codes line from 272 to 329.

TIC TAC TOE PROJECT BY ABDULLAH AND AHSAN.py > ...

```
272     elif board[0][0] in symbols and board[0][1] in symbols and board[0][2] in symbols and\
273         board[1][0] in symbols and board[1][1] in symbols and board[1][2] in symbols and\
274         board[2][0] in symbols and board[2][1] in symbols and board[2][2] in symbols:
275 
276         print("Game is a draw.")
277         return True
278 
279 #_________________GAME STARTING POINT___________________#
280 print("_____________________________________________________________________________________________________________\n")
281 print("                                                Weclcome to The Game                                         ")
282 print("                                                    Tic-Tac-Toe                                              ")
283 print("_____________________________________________________________________________________________________________\n")
284 
285 name=input("Please enter your name:\n")
286 if name=="":
287     name1="you"
288 else:
289     name1=name
290 name2="Computer"
291 
292 game_repition="Y"
293 board()
294 while game_repition=="Y":
295 
296     printing_board(board)
297     choosing_symbol()
298     user_turn = cointoss()
299     if user_turn==True:
300         print("You won the toss. Go for the first move")
301 
302     else:
303         print("Computer won the toss. Computer goes for the first move")
304     while True:
305         if user_turn == True:
306             player_input(board)
307             printing_board(board)
308             #check_win(board)
309             if check_win(board)==True:
310                 break
311             else:
312                 user_turn=False
313         else:
314             computer_moves(board)
315             printing_board(board)
316             #check_win(board)
317             if check_win(board)==True:
318                 break
319             else:
320                 user_turn=True
321     game_repition=input("Do you want to repeat the game?\n'Y' Yes and 'N' for No. Anything else is invalid:\n").upper()
322     board= [
323         [" ", " ", " "],
324         [" ", " ", " "],
325         [" ", " ", " "]
326     ]
327 print("Game has quited. Thank for playing.")
328 
329 #_____________________          END OF THE MIGHTY CODE└(*°▽°*)┘          _____________________________________#
```

Figure 9

THE END.