



Cairo University, Faculty of Computers and Artificial Intelligence

**FACULTY OF COMPUTERS  
AND AI, CAIRO  
UNIVERSITY**

**CS213: Object Oriented Programming Fall 2023**

**Year 2022-2023**

**First Semester**

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Firstly, we checked each other's code, and we found no mistakes or uncleared variables so we used (PVS Studio) to review our codes, we got some issues and we fixed them and we attached screen shots of it down below.

This is the issue as described in the PVS menu:

☆ V501	There are identical sub-expressions to the left and to the right of the '==' operator: board[x][y] == board[x][y]	X_O_Board.cpp(179)
☆ V501	Non-void function should return a value.	X_O_Board.cpp(185)
☆ V501	There are identical sub-expressions to the left and to the right of the '==' operator: board[x][y] == board[x][y]	X_O_Board.cpp(189)
☆ V501	Non-void function should return a value.	X_O_Board.cpp(194)
☆ V501	There are identical sub-expressions to the left and to the right of the '==' operator: board[x][y] == board[x][y]	X_O_Board.cpp(198)
☆ V501	Non-void function should return a value.	X_O_Board.cpp(203)
☆ V501	There are identical sub-expressions to the left and to the right of the '==' operator: board[x][y] == board[x][y]	X_O_Board.cpp(206)
☆ V501	Non-void function should return a value.	X_O_Board.cpp(211)

The issue here is the unnecessary condition:

```
bool X_O_Board5x5::check_diagonal2(int x, int y) {  
    if(is_valid(x+1,y-1) && is_valid(x+2,y-2)){  
        if((board[x][y] == board[x][y] && board[x+1][y-1] == board[x][y] && board[x+2][y-2] == board[x][y])){  
            return true;  
        }  
    }  
    return false;  
}
```

We simply solve it by removing the extra condition:

```
bool X_O_Board5x5::check_diagonal2(int x, int y) {  
    if(is_valid(x+1,y-1) && is_valid(x+2,y-2)){  
        if((board[x+1][y-1] == board[x][y] && board[x+2][y-2] == board[x][y])){  
            return true;  
        }  
    }  
    return false;  
}
```

Here we have the same issue so we solved it the same way with the repeated issues:

```
bool X_O_Board5x5::check_diagonal2(int x, int y) {  
    if(is_valid(x+1,y-1) && is_valid(x+2,y-2)){  
        if((board[x][y] == board[x][y] && board[x+1][y-1] == board[x][y] && board[x+2][y-2] == board[x][y])){  
            return true;  
        }  
    }  
    return false;  
}
```

Also we used Github repository to get the code together and so everyone can commit his edits as shown in the screen shots below, also we attached link of our repository, kindly take a look at it.

<https://github.com/Mohamed-Taha20/OOP-Assignment3>

Delete Seperated games/test	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 34752dd...b3ee8e5 • 2 hours ago	...
Add files via upload	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 7d874c0...34752dd • 2 hours ago	...
Create test2	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 83fdd5d...7d874c0 • 2 hours ago	...
Create test file	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 66fff73...83fdd5d • 2 hours ago	...
Delete Integrated program/Test Program	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 9a1b41b...66fff73 • 2 hours ago	...
Add files via upload	yousef-15 pushed 1 commit to <code>main</code> • 7138a20...9a1b41b • 2 hours ago	...
Welcome to our program	Mohamed-Taha20 pushed 1 commit to <code>main</code> • db4dce9...7138a20 • 2 hours ago	...
Update connect_four_app.cpp	Mohamed-Taha20 pushed 1 commit to <code>main</code> • ef3c21d...db4dce9 • 3 hours ago	...
X O5x5 <a href="#">Pull request merge</a>	Mohamed-Taha20 pushed 2 commits to <code>main</code> • a5fe31e...ef3c21d • 3 hours ago	...
Pyramic tic tac toe <a href="#">Pull request merge</a>	Mohamed-Taha20 pushed 2 commits to <code>main</code> • c25bfab...a5fe31e • 3 hours ago	...
Add files via upload	Mohamed-Taha20 created <code>main</code> • c25bfab • 4 hours ago	...
Delete RandomPlayer.cpp	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 629461b...f76638b • 2 hours ago	...
Delete Player.cpp	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 816ca1a...629461b • 2 hours ago	...
Delete GameManager.cpp	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 6d986c2...816ca1a • 2 hours ago	...
Add files via upload	Mohamed-Taha20 pushed 1 commit to <code>main</code> • c5847aa...6d986c2 • 2 hours ago	...
Delete connect_four_app.cpp	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 4fd4a80...c5847aa • 2 hours ago	...
Delete Sherif Mahmoud-20221080/Seperated games/Sherif Mahmoud-2022108...	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 8a56667...4fd4a80 • 2 hours ago	...
Update and rename Sherif Mahmoud-20221080/BoardGame_Classes.hpp to Sh...	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 96aecdd7...8a56667 • 2 hours ago	...
Update and rename BoardGame_Classes.hpp to Sherif Mahmoud-20221080/Bo...	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 07d497f...96aecdd7 • 2 hours ago	...
Delete Seperated games/Yousef Waleed-20221206/X O5x5.zip	Mohamed-Taha20 pushed 1 commit to <code>main</code> • f3a7d3b...07d497f • 2 hours ago	...
Add files via upload	yousef-15 pushed 1 commit to <code>main</code> • eb0b4bd...f3a7d3b • 2 hours ago	...
Create test4	Mohamed-Taha20 pushed 1 commit to <code>main</code> • 2edf3e2...eb0b4bd • 2 hours ago	...

Update X_O_Board.cpp	...
 yousef-15 pushed 1 commit to <a href="#">main</a> • 47bbc01...a412634 • 31 minutes ago	
Update BoardGame_Classes.hpp	...
 yousef-15 pushed 1 commit to <a href="#">main</a> • 0c38b46...47bbc01 • 32 minutes ago	
Update GameManager.cpp	...
 yousef-15 pushed 1 commit to <a href="#">main</a> • dacc4c7...0c38b46 • 32 minutes ago	
Update RandomPlayer.cpp	...
 yousef-15 pushed 1 commit to <a href="#">main</a> • 2154dc3...dacc4c7 • 33 minutes ago	
Update Player.cpp	...
 yousef-15 pushed 1 commit to <a href="#">main</a> • 2e926cb...2154dc3 • 33 minutes ago	
Update Integrated_Game.cpp	...
 yousef-15 pushed 1 commit to <a href="#">main</a> • 3ff6e53...2e926cb • 33 minutes ago	
Update Integrated_Game.cpp	...
 Mohamed-Taha20 pushed 1 commit to <a href="#">main</a> • bc1c0e2...3ff6e53 • 1 hour ago	
Update Integrated_Game.cpp with interface	...
 Mohamed-Taha20 pushed 1 commit to <a href="#">main</a> • 50c88cc...bc1c0e2 • 1 hour ago	
Add files via upload	...
 yousef-15 pushed 1 commit to <a href="#">main</a> • 7efae38...50c88cc • 2 hours ago	
Update and rename X_O_App.cpp to Integrated_Game.cpp	...
 Mohamed-Taha20 pushed 1 commit to <a href="#">main</a> • e68ce4a...7efae38 • 2 hours ago	
Delete X_O_Board.cpp	...
 Mohamed-Taha20 pushed 1 commit to <a href="#">main</a> • 354b530...e68ce4a • 2 hours ago	