

Question 1

#	File	Line	Problem	Solution
1	simpleGame/src/main/java/simpleGame/cli/CLIMain.java	9	All methods are static. Consider using Singleton instead. Alternatively, you could add a private constructor or make the class abstract to silence this warning.	Make the CLIMain class abstract
2	simpleGame/src/main/java/simpleGame/cli/CLIMain.java	13	Parameter 'args' is not assigned and could be declared final	Remove the args parameter
3	simpleGame/src/main/java/simpleGame/cli/CLIMain.java	16	Local variable 'scanner' could be declared final	False positive because we can edit the scanner object in the future
4	simpleGame/src/main/java/simpleGame/cli/CLIMain.java	24	Local variable 'd' could be declared final	False positive, this is a loop iterator.
5	simpleGame/src/main/java/simpleGame/core/Board.java	18	Private field 'xSize' could be made final; it is only initialized in the declaration or constructor.	Set the xSize variable as final
6	simpleGame/src/main/java/simpleGame/core/Board.java	23	Private field 'ySize' could be made final; it is only initialized in the declaration or constructor.	Set the ySize variable as final
7	simpleGame/src/main/java/simpleGame/core/Board.java	28	Private field 'pawns' could be made final; it is only initialized in the declaration or constructor.	Set the pawns variable as final
8	simpleGame/src/main/java/simpleGame/core/Board.java	33	Private field 'xBonusSquare' could be made final; it is only initialized in the declaration or constructor.	Set the xBonusSquare variable as final
9	simpleGame/src/main/java/simpleGame/core/Board.java	38	Private field 'yBonusSquare' could be made final; it is only initialized in the declaration or constructor.	Set the yBonusSquare variable as final

10	simpleGame/src/main/java/si mpleGame/core/Board.java	64	Parameter 'numberOfPawns' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive
11	simpleGame/src/main/java/si mpleGame/core/Board.java	64	Parameter 'sizeX' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive
12	simpleGame/src/main/java/si mpleGame/core/Board.java	64	Parameter 'sizeY' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive
13	simpleGame/src/main/java/si mpleGame/core/Board.java	64	Parameter 'xBonus' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive
14	simpleGame/src/main/java/si mpleGame/core/Board.java	64	Parameter 'yBonus' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive
15	simpleGame/src/main/java/si mpleGame/core/Board.java	65	Local variable 'random' could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
16	simpleGame/src/main/java/si mpleGame/core/Board.java	72	Avoid instantiating new objects inside loops	Instantiate the pawn object before the loop, and use it inside the loop. Otherwise, it can consume a lot of memory.
17	simpleGame/src/main/java/si mpleGame/core/Board.java	72	Local variable 'pawn' could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive
18	simpleGame/src/main/java/si mpleGame/core/Board.java	86	Parameter 'x' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
19	simpleGame/src/main/java/si	86	Parameter 'y' is not assigned and could be	We can set this variable final, but that can clutter the

	mpleGame/core/Board.java		declared final	code. I would not do this for method parameters and consider this as a false positive.
20	simpleGame/src/main/java/si mpleGame/core/Board.java	87	Local variable 'p' could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
21	simpleGame/src/main/java/si mpleGame/core/Board.java	88	Useless parentheses.	Remove these parentheses
22	simpleGame/src/main/java/si mpleGame/core/Board.java	88	Useless parentheses.	Remove these parentheses
23	simpleGame/src/main/java/si mpleGame/core/Board.java	99	Parameter 'pawn' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
24	simpleGame/src/main/java/si mpleGame/core/Board.java	107	Parameter 'pawn' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
25	simpleGame/src/main/java/si mpleGame/core/Board.java	119	Parameter 'x' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
26	simpleGame/src/main/java/si mpleGame/core/Board.java	119	Parameter 'y' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
27	simpleGame/src/main/java/si mpleGame/core/Board.java	138	Local variable 'p' could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
28	simpleGame/src/main/java/si mpleGame/core/Board.java	154	Local variable 'result' could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.

29	simpleGame/src/main/java/simpleGame/core/Board.java	167	Parameter 'x' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
30	simpleGame/src/main/java/simpleGame/core/Board.java	167	Parameter 'y' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
31	simpleGame/src/main/java/simpleGame/core/Board.java	169	Local variable 'content' could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
32	simpleGame/src/main/java/simpleGame/core/Board.java	176	Use equals() to compare object references.	Use “content.equals(currentPawn)” instead
33	simpleGame/src/main/java/simpleGame/core/Board.java	192	Prefer StringBuffer over += for concatenating strings	Cast result to a StringBuffer object and use concat method to improve performances.
34	simpleGame/src/main/java/simpleGame/core/Board.java	194	Prefer StringBuffer over += for concatenating strings	Cast result to a StringBuffer object and use concat method to improve performances.
35	simpleGame/src/main/java/simpleGame/core/Game.java	16	Private field 'board' could be made final; it is only initialized in the declaration or constructor.	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
36	simpleGame/src/main/java/simpleGame/core/Game.java	31	Useless parentheses.	Remove parentheses
37	simpleGame/src/main/java/simpleGame/core/Game.java	32	Useless parentheses.	Remove parentheses
38	simpleGame/src/main/java/simpleGame/core/Game.java	42	Prefer StringBuffer over += for concatenating strings	Cast result to a StringBuffer object and use concat method to improve performances.
39	simpleGame/src/main/java/simpleGame/core/Game.java	52	Parameter 'd' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.

40	simpleGame/src/main/java/simleGame/core/Pawn.java	21	<u>Private field 'board' could be made final; it is only initialized in the declaration or constructor.</u>	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
41	simpleGame/src/main/java/simleGame/core/Pawn.java	36	<u>Private field 'letter' could be made final; it is only initialized in the declaration or constructor.</u>	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
42	simpleGame/src/main/java/simleGame/core/Pawn.java	64	<u>Parameter 'board' is not assigned and could be declared final</u>	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
43	simpleGame/src/main/java/simleGame/core/Pawn.java	64	<u>Parameter 'n' is not assigned and could be declared final</u>	False positive, this is a loop iterator.
44	simpleGame/src/main/java/simleGame/core/Pawn.java	64	<u>Parameter 'x' is not assigned and could be declared final</u>	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
45	simpleGame/src/main/java/simleGame/core/Pawn.java	64	<u>Parameter 'y' is not assigned and could be declared final</u>	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
46	simpleGame/src/main/java/simleGame/core/Pawn.java	80	<u>Parameter 'd' is not assigned and could be declared final</u>	False positive, this is a loop iterator.
47	simpleGame/src/main/java/simleGame/core/Pawn.java	88	<u>Switch statements should have a default label</u>	Add a default with an exception
48	simpleGame/src/main/java/simleGame/core/Pawn.java	107	<u>Local variable 'content' could be declared final</u>	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
49	simpleGame/src/main/java/simleGame/core/Pawn.java	130	<u>Parameter 'enemy' is not assigned and could be declared final</u>	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.

50	simpleGame/src/main/java/simpleGame/core/Pawn.java	133	Prefer StringBuffer over += for concatenating strings	Cast message to a StringBuffer object and use concat method to improve performances.
51	simpleGame/src/main/java/simpleGame/core/Pawn.java	135	Prefer StringBuffer over += for concatenating strings	Cast message to a StringBuffer object and use concat method to improve performances.
52	simpleGame/src/main/java/simpleGame/core/Pawn.java	147	Parameter 'i' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
53	simpleGame/src/main/java/simpleGame/core/Pawn.java	153	Prefer StringBuffer over += for concatenating strings	Cast message to a StringBuffer object and use concat method to improve performances.
54	simpleGame/src/main/java/simpleGame/exception/OutOfBoardException.java	10	Parameter 'x' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.
55	simpleGame/src/main/java/simpleGame/exception/OutOfBoardException.java	10	Parameter 'y' is not assigned and could be declared final	We can set this variable final, but that can clutter the code. I would not do this for method parameters and consider this as a false positive.

Question 2

There are a lot of errors on the code of PMD, mostly variables errors like “the variable can be final”.