

- Student Name: Puru Gupta
- Student Roll Number: 20171187
- Code Review of Project: MARIO Game built in First Assignment
- Number of Lines Reviewed: 1119
- Number of Classes:  $4+1+7+1 = 13$
- Number of Methods:  $43+5+22+24 = 94$
- Number of Bugs Identified: 9
- Number of Code Smells Identified: 8

BUG NUMBER	SHORT DESCRIPTION
#1	Sometimes the enemy cannot be killed by a single bullet. <b>(SOLVED PARTIALLY)</b>
#2	Sometimes enemies cannot be killed by Mario during the jump if Mario jumps on the edge of the enemy, it stands on the enemy. <b>(SOLVED)</b>
#3	If fired quickly, bullets overlap on each other.
#4	If a key is held for a long duration, even after releasing the key the effect of the previous key remains.
#5	PowerUp cannot be taken by Mario, if it stands on the edge of it. <b>(SOLVED)</b>
#6	Bullets disappear on touching Mario. <b>(SOLVED)</b>
#7	Even after taking the PowerUp, it keeps on appearing if Mario struck the block. <b>(SOLVED)</b>
#8	Mario passes through objects if any key is held for a longer duration.
#9	Mario can sometimes walk on the Bullets. <b>(SOLVED PARTIALLY)</b>

SMELL NUMBER	CODE SMELL	SHORT DESCRIPTION
#1	Long Single Line Statement	Some if conditions are written in long statements which increases complexity. <b>(SOLVED)</b>
#2	Duplicate Code	Same code written twice to print the WIN screen and the normal game screen(obj_printer & win_obj_printer).

#3	Conditional Complexity	While printing bullets a lot of if conditions and nested for loops are used.
#4	Uncommunicative Names	Bad Variable Names in the Overall Code. <b>(SOLVED)</b>
#5	Large Class	Some classes like Mario and Scene are huge.
#6	Combinitorial Explosion	Random Coordinates Selector function is repeated for each object with just a change in input list.
#7	Dead Code	Some else and return conditions written are never reached. <b>(SOLVED)</b>
#8	Duplicate Code	Duplicate code for printing bullets with forward and backward velocity.