

1. Identify all the verification activities that occur in the Requirements, Design and implementation phases of the SE Lifecycle.

- Requirements:
 - Requirements Analysis to ensure all requirements of the customer have been found
- Design:
 - Design Reviews compare a design to the requirements to make sure the design will meet the requirements (which should be complete because of requirements analysis)
 - Requirements Traceability involves tracing exact parts of a design back to a specific requirement. This is another way to ensure every requirement has been met by the design.
- Implementation:
 - Code Reviews ensure the code has no identifiable defects, and are inline with the design guidelines created.
 - Unit Testing tests individual parts of the code in isolation to identify any part of the code not behaving as expected. Test cases are made to test these small parts of code and allow developers to quickly identify defects that may be missed in code reviews.

2. Identify all the validation activities that occur in the Requirements, Design and implementation phases of the SE Lifecycle:

- Customer Acceptance Testing ensures our solution meets the requirements set and allows the customer to find defects as well because of their deeper understanding of the business needs.

Given the following Requirements, identify the test cases you would expect to run in the test phase (where applicable, specify the requirement the test is for). NOTE: I was kind enough to group the requirements into logical subsystems and tried to order them in a consistent way. If you find a missing requirement or conflict in the requirements, point it out (that would be exceeding expectations).

The solution must initiate a missile launch when the user clicks the right mouse button:

Precondition: The game is running and no missiles are on the screen

Action: User clicks right mouse button one time

Postcondition: One missile is fired in a straight direction from the ship

Precondition: The game is running and no missiles are on the screen

Action: User presses random letter

Postcondition: No missiles are fired

Precondition: The game is running and no missiles are on the screen

Action: User presses random number

Postcondition: No missiles are fired

Precondition: The game is running and no missiles are on the screen

Action: User presses random symbol

Postcondition: No missiles are fired

The solution must initiate a missile launch when the user clicks the space bar:

Precondition: The game is running and no missiles are on the screen

Action: User presses the space bar

Postcondition: One missile is fired in a straight direction from the ship

Precondition: The game is running and no missiles are on the screen

Action: User presses multiple random characters at the same time other than spacebar and right mouse button

Postcondition: No missiles are fired

The solution must limit the number of active missiles on the screen to no more than five (5) at any given time. (an “active missile” is any missile currently being displayed on the screen)

Precondition: The game is running and no missiles are on the screen

Action: Press the spacebar 6 times in rapid succession

Postcondition: Only 5 missiles are fired, and the 6th missile does not register