Topic 13: Systematic Approach to Problem Solving

13.1 Aspects of Software Development

13.1.1 Analysis

Analysis: The definition of a problem and the establishment of the system requirements and data models necessary to solve the problem, after the necessary research.

13.1.2 Design

Design: The planning and specification of the data structures, algorithms, modules and interfaces necessary for the solution to the problem.

13.1.3 Implementation

Implementation: Writing the code necessary to create the algorithms and data structures from the design phase, in an iterative process of prototyping.

13.1.4 Testing

Acceptance Testing: A component of testing with the intended users to ensure the intended solution is met.

Boundary Data: Test input data that lies on the boundary of the system's expected range.

Erroneous Data: Test input data that lies outside of the system's expected range (incorrect data).

Normal Data: Test input data that lies within the system's expected range. It should return the expected output.

Testing: Running implementations to check for the presence of errors, using selected test data covering normal (typical), boundary and erroneous data.

13.1.5 Evaluation

Evaluation: The judgement of the system to check if it has met the required criteria to be an effective solution to the initial problem.