Assignment 1: The Test Design Technique

Overview: This assignment introduces the fundamentals of test design with *the four step test design technique*. You will use this technique for all test design tasks in this course, hence study it carefully.
General notes: This assignment counts towards Lab 1. Deliver solutions to all exercises as defined in the *deliverables* to pass this assignment. When using material outside of the official course material (lecture, slides, tutorials), state the source and critically reflect on its usage. In case of questions, please contact Zeth Danielsson (zeda21@student.bth.se).
Work distribution: At the beginning of each assignment submission, state how the work was distributed among the two team members.

1. Test Design Technique

The test design technique is the most general approach at generating test cases in a structured manner. It is applicable both on a very high and very low level of abstraction. Hence, it is vital to master for all subsequent tasks. *Explain the application of the test design technique.*
Deliverables: The submission to this exercise must contain all of the following:

1. A list of all steps of the test design technique together with an explanation how they are performed.
2. A brief explanation of how the test design technique helps creating test cases in a structured manner.

2. Boundary Value Analysis and Equivalence Partitioning

Boundary value analysis (BVA) and equivalence partitioning (EP) are two additional tools that help designing relevant test cases. *Explain, how they work, and argue for their usability.* Then, consider a method that checks the validity of an age: values below 0 and above 120 shall be identified as impossible by the method, values below 18 as underage and values from 18 on as valid. *Elicit both the boundary values and equivalence partitions for this scenario.*
Deliverables: The submission to this exercise must contain all of the following:

1. An explanation of boundary value analysis and equivalence partitioning.
2. A comparison of their usability.
3. An application of the BVA and EP to the presented scenario.

3. Designing Test Cases

Consider the following scenario: To open the door at the entrance of a company building from the outside, one must either hold a valid company card to a sensor for at least two seconds or have the door automatically unlocked by the porter. The door can always be opened from the inside. *Design all relevant test cases for this scenario using the test design technique.*
Deliverables: The submission to this exercise must contain all of the following:

1. An identification of the conditions and actions within the scenario.
2. All valid combinations of the former.
3. The expected outcome for each combination.