**TEST DESIGN**

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| **Case N° 1** | **Objective**: Test that the program creates correctly different instances of the classes of model | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| GraphTest | + *Graph()* | Empty | Empty | An object of class Graph is created |

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| **Case N° 2** | **Objective**: Test that the program creates correctly different instances of the classes of model | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| VertexTest | + *Vertex()* | Empty | obj | An object of class Vertex is created |

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| **Case N° 3** | **Objective**: Test that the program creates correctly different instances of the classes of model | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| EdgeTest | + *Edge()* | Empty | v1,v2 | An object of class Edge is created |

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| **Case N° 1** | **Objective**: Test that the program adds Vertices correctly | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| GraphTest | + *addVertex()* | Empty | obj | Vertex is added correctly. It is contained in Graph list |

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| **Case N° 2** | **Objective**: Test that the program adds Vertices correctly | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| GraphTest | + *addVertex()* | Empty | obj=null | Vertex is added correctly. It is contained in Graph list |

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| **Case N° 1** | **Objective**: Test that the program removes Vertices correctly | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| GraphTest | + *removeVertex ()* | Empty | obj | Vertex is removed correctly. It is not found on the adjacency list. |
| **Case N° 2** | **Objective**: Test that the program removes Vertices correctly | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| GraphTest | + *removeVertex ()* | Empty | obj=null | All vertices that contain a null object are removed. |

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| **Case N° 1** | **Objective**: Test that the program traverses the graph Correctly | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| GraphTest | + *depthFirstSearch ()* | Empty |  | It traverses and builds the dfs tree correctly |

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| **Case N° 2** | **Objective**: Test that the program traverses the graph Correctly | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| GraphTest | + *depthFirstSearch ()* | Empty |  | Error. Cannot traverse empty graph. |

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| **Case N° 3** | **Objective**: Test that the program traverses the graph Correctly | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| GraphTest | + *dijkstra ()* | Empty |  | Error. Cannot traverse empty graph. |

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| **Case N° 3** | **Objective**: Test that the program traverses the graph Correctly | | | |
| **Class** | **Method** | **Scenary** | **Input** | **Output** |
| GraphTest | + *dijkstra ()* | Empty |  | It traverses and builds the tree correctly |