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* **Graph test**

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| **Test objective:** To know if the graph add vertex method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | addVertex() | setUpStage1 | vertex1 | A new vertex has been inserted in the Graph (True) |
| Graph | addVertex() | setupStage1 | vertex2  vertex3  vertex4  vertex5 | Four new vertex have been inserted in the Graph (True) |
| Graph | addVertex() | setupStage1 | (NULL) | No vertex have been inserted in the Graph (False) |

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| **Test objective:** To know if the Graph add edge method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | addEdge() | setUpStage1 | edge1, edge2 | A new edge has been inserted in the Graph (True) |
| Graph | addEdge() | setupStage1 | edge3, edge4  edge5, edge6 | Two new edges have been inserted in the Graph (True) |
| Graph | addEdge() | setupStage1 | (NULL) | No edge have been inserted in the Graph (False) |

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| **Test objective:** To know if the Graph search vertex method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | searchVertex() | setUpStage1 | “A1” | The vertex found is vertex1. |
| Graph | searchVertex() | setupStage1 | “B2” | The vertex found is vertex2. |
| Graph | searchVertex() | setupStage1 | “Z500” | No vertex found (null) |

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| **Test objective:** To know if the Graph search Edge method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | searchEdge() | setUpStage1 | “A1”, “B2” | The edge found is edge1. |
| Graph | searchEdge() | setupStage1 | “C3”, “D4” | The edge found is edge2. |
| Graph | searchEdge() | setupStage1 | “E5”, “Z500” | No edge found (null) |

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| **Test objective:** To know if the Graph BFS method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | BFS() | setUpStage1 | 1 | The graph is connected (True) |
| Graph | BFS() | setupStage1 | 4 | The graph isn’t connected (False) |
| Graph | BFS() | setupStage1 | 500 | The index doesn’t exist (False) |

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| **Test objective:** To know if the Graph DFS method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | DFS() | setUpStage1 | no input required | The graph is connected (0) |
| Graph | DFS() | setupStage1 | no input required | The graph isn’t connected (2) |
| Graph | DFS() | setupStage1 | no input required | The graph isn’t connected (5) |

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| **Test objective:** To know if the Graph dijkstra method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | dijkstra() | setUpStage1 | vertex1 | [2, 3, 1] |
| Graph | dijkstra() | setupStage1 | vertex2 | [2, 2, 2] |
| Graph | dijkstra() | setupStage1 | vertex40 | [] |

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| **Test objective:** To know if the Graph floyd warshall method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | floydWarshall() | setUpStage1 | no input required |  |
| Graph | floydWarshall() | setUpStage1 | no input required |  |
| Graph | floydWarshall() | setupStage1 | no input required | The graph contain cycles |

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| **Test objective:** To know if the Graph prim method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | prim() | setUpStage1 | 0 | 0, 2, 20 |
| Graph | prim() | setupStage1 | 1 | 12, 0, 6 |
| Graph | prim() | setupStage1 | 2 | 18, 5, 0 |

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| **Test objective:** To know if the Graph kruskal method is running correctly. | | | | |
| **Class** | **Method** | **Stage** | **Inputs** | **Result** |
| Graph | kruskal() | setUpStage1 | ArrayList<Integer[]> Node  ArrayList<Integer[]> Edges | The minimal cover tree is [1, 2, 3, 4, 5] |
| Graph | kruskal() | setupStage1 | ArrayList<Integer[]> Node  ArrayList<Integer[]> Edges | The minimal cover tree is [6, 3, 1, 2, 3, 6, 5, 4, 2, 4, 5] |