Documentation Practical Work no. 1

`read_file()`

Reads a graph from a file and stores it in the repository.

- **Args:**
  - `file_name`: the name of the file

`write_file()`

Writes the whole graph to the file, overwriting the previous content.

- **Args:**
  - `file_name`: the name of the file

`write_given_graph_to_file(graph: Graph, file_name: str)`

Writes a randomly generated graph to a file.

- **Args:**
  - `graph`: the graph to be written
  - `file_name`: the name of the file

`add_vertex(i)`

Adds a vertex to the graph if it does not already exist.

- **Args:**
  - `i`: "name" of the vertex

`remove_vertex(i)`

Removes a vertex from the graph if it exists.

- **Args:**
  - `i`: "name" of the vertex

`add_edge(i, j, cost)`

Adds an edge to the directed graph from i to j.

- **Args:**
  - `i`: first vertex (out)
  - `j`: second vertex (in)
  - `cost`: the cost of the edge

`remove_edge(i, j)`

Removes an edge from the graph.

- **Args:**
  - `i`: first vertex (out)
  - `j`: second vertex (in)

`is_vertex(i) -> bool`

Checks if a vertex exists in the graph.

- **Args:**
  - `i`: "name" of the vertex

`is_edge(i, j) -> bool`

Checks if an edge exists in the graph.

- **Args:**
  - `i`: first vertex (out)
  - `j`: second vertex (in)

`get_isolated_vertices() -> list`

Returns a list of isolated vertices.

`copy_graph() -> Graph`

Returns a copy of the current graph.

`generate_random_graph(no_vertices: int, no_edges: int) -> Graph`

Generates a random graph with a given number of vertices and edges.

- **Args:**
  - `no_vertices`: number of vertices
  - `no_edges`: number of edges

`get_vertices() -> list`

Returns a list of vertices.

`update_edge_cost(i: int, j: int, cost: int)`

Updates the cost of an edge.

- **Args:**
  - `i`: first vertex (out)
  - `j`: second vertex (in)
  - `cost`: the new cost

`in_degree_of_vertex(i: int) -> int`

Returns the in-degree of a vertex.

- **Args:**
  - `i`: "name" of the vertex

`out_degree_of_vertex(i: int) -> int`

Returns the out-degree of a vertex.

- **Args:**
  - `i`: "name" of the vertex

`number_of_vertices() -> int`

Returns the number of vertices in the graph.

`number_of_edges() -> int`

Returns the number of edges in the graph.

`get_inbounds_of_vertex(i: int) -> list`

Returns a list of inbounds of a vertex.

- **Args:**
  - `i`: "name" of the vertex

`get_outbounds_of_vertex(i: int) -> list`

Returns a list of outbounds of a vertex.

- **Args:**
  - `i`: "name" of the vertex