**Data Structures.** Assignment #5

Course: CSE22101

Name: Dauren Abdykaparov

Student ID: 20142001

PushUp (k): swap k-th vertex of heap with its parent while heap properties are unsatisfied.

PushDown (k): swap k-th vertex of heap with the least children while heap properties are unsatisfied.

Push (e): add e as the last element of heap and PushUp() it.

Top (): return first element of heap.

Pop (): swap first and the last elements of heap, decrease the size by one and PushDown() first (ex-last) vertex of heap.

Modify (e): change the value of a vertex corresponding to e, PushUp() or PushDown() it depending on which heap property is unsatisfied.

IsEmpty (): return true if heap is empty.

NotEmpty (): return true if heap is not empty.

ReadGraph (input): read the graph and save it in as linked list. This function also allocates memory for all dynamic arrays used in Dijkstra class.

FindPath (v0, v1): looks for the shortest path as described in the problem description.