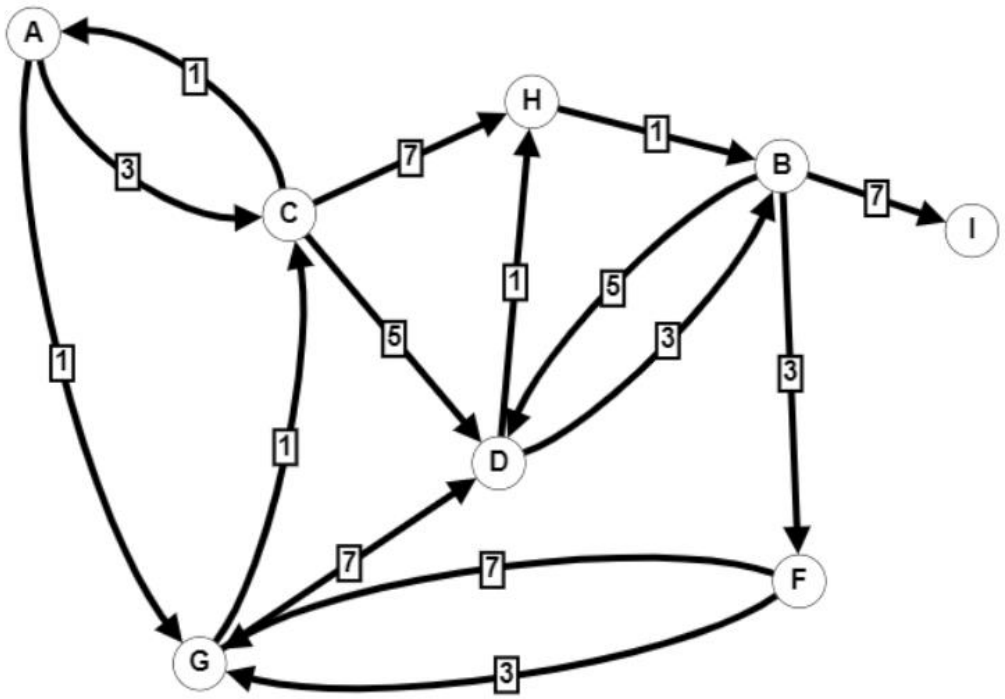
ADT Multigraph directed

$$G = (V, E)$$
$$f\ of\ E\ in \{\{u, v\} |\ u, v \in V\}$$
$$e_1\ and\ e_2\ are\ multiple\ edges\ if\ f(e_1) = f(e_2)$$



$$V = \{A, C, B, D, E, F, G, H, I\}$$
$$E = \{(A, C), (C, A), (A, G), (H, D), (F, G) \ldots\}$$

Note: The number in the edge are the weight of the edges, these can be any value, but always must be an Integer
Weight = w

$$inv = \{no\ lops\}$$
$$inv = \{\forall\ w\ \{w |\ w > 0\}\}$$
$$inv = \{V\ !=\ \emptyset\}$$
$$inv = \{E\ != \emptyset\}$$

Primitive Operations

MDGraph	…	MDGraph
Create Vertex	MDGraph x Pos	MDGraph x Vertex
Create Edge	MDGraph x V1 x V2 x W	MDGraph x Edge
Dijkstra Path	MDGraph x V1 x V2	MDGraph x List Vertex
Dijkstra Amount	MDGraph x Dijkstra Path	Integer
Floyd Warshall	MDGraph	MDGraph x List Vertex

MDGraphe( ): Constructor
Create a new Multigraph derigged
$pre = \{true\}$ $pos = \{MDGraph\}$

Create Vertex(Int pos): Creator
Creates a new vertex in the graph, this vertex must have an identification
$pre = \{true, MDGraph\}$ $pos = \{a\ new\ vertex\ without\ conexion\}$

Create Edge(V vertex1, V vertex2, W weight): Creator
Creates a new edge between two vertexes, this edge has a weight, this weight is an integer greater than zero. Also, de vertex1 is the begin and the vertex2 is the end.
$pre = \{vertex1, vertex2\}$ $pos = \{edge\ between\ vertex1, vertex2\}$

Dijkstra Path(V vertex1, V vertex2) : Analyzer
Visit all the paths between the vertex1 and vertex2, evaluate any paths to know which path is the shortest one, and return a list with the vertexes of the path
$pre = \{true, vertex1, vertex2\}$ $pos = \{list\ with\ vertexes\}$

Dijkstra Amount( ) : Analyzer
Get the list of the method Dijkstra Path, and then evaluate the edges between the vertexes of the list and get the total weight of the path.
$pre = \{Dijkstra\ Path\}$ $pos = \{an\ integer\ that\ is\ the\ total\ weight\}$

Floyd Warshall( ) : Analyzer
Evaluates all paths between all vertices, to find the shortest path between any pair of vertices.
$pre = \{true\}$ $pos = \{list\ with\ vertexes\}$