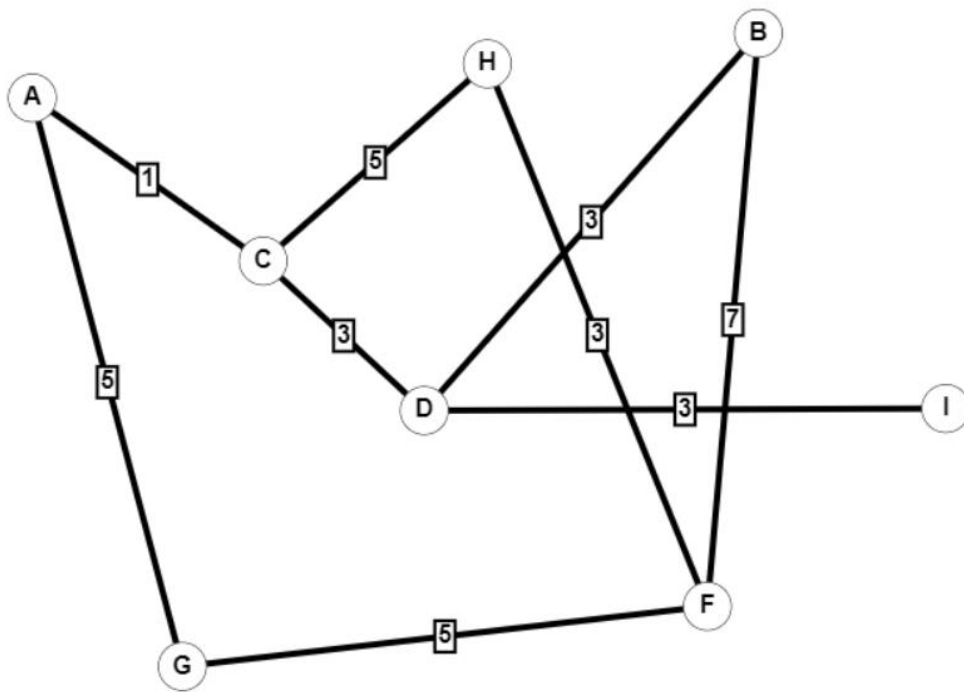**Simple Graph ADT**

$$G = (V, E)$$

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

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

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

Primitive Operations

SGraph	…	SGraph
Create Vertex	SGraph x Pos	SGraph x Vertex
Create Edge	SGraph x V1 x V2	SGraph x Edge
Dijkstra Path	SGraph x V1 x V2	SGraph x List Vertex
Dijkstra Amount	SGraph x List Vertex	Integer

SGraph( ): Constructor
Creates a new Simple Graph
$pre = \{true\}$ $pos = \{SGraph\}$

Create Vertex(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.
$pre = \{vertex1, vertex2\}$ $pos = \{edge\ between\ vertex1, vertex2\}$

Dijkstra Path(V vertex1, 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.
$pre = \{Dijkstra\ Path\}$ $pos = \{an\ integer\ that\ is\ the\ total\ weight\}$