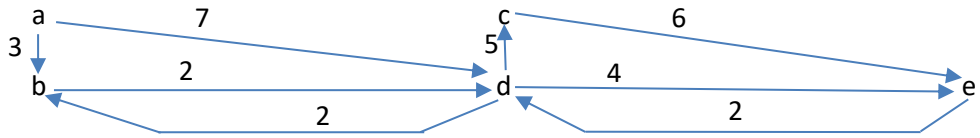
Workshop 9 – Week 10 – Worksheet 9

Programming 9.1 Draw the graph and then run through Dijkstra's Algorithm starting from the vertex a.



Dijkstra's Algorithm:

PQ: (a, 0, a)

Destination	a	b	c	d	e
Cost	0	∞	∞	∞	∞
Pred	a	-	-	-	-
Visited	0	0	0	0	0

Pop highest priority item, (a, 0, a)
PQ: (b, 3, a), (d, 7, a)

Destination	a	b	c	d	e
Cost	0	3	∞	7	∞
Pred	a	a	-	a	-
Visited	1	0	0	0	0

Pop highest priority item, (b, 3, a)
PQ: (d, 5, b)

Destination	a	b	c	d	e
Cost	0	3	∞	5	∞
Pred	a	a	-	b	-
Visited	1	1	0	0	0

Pop highest priority item, (d, 5, b)
PQ: (e, 9, d), (c, 10, d)

Destination	a	b	c	d	e
Cost	0	3	10	5	9
Pred	a	a	d	b	d
Visited	1	1	0	1	0

Pop highest priority item, (e, 9, d)
PQ: (c, 10, d)

Destination	a	b	C	d	e
Cost	0	3	10	5	9
Pred	a	a	d	b	d
Visited	1	1	0	1	1

Pop highest priority item, (c, 10, d)
PQ:

Destination	a	b	C	d	e
Cost	0	3	10	5	9
Pred	a	a	d	b	d
Visited	1	1	1	1	1

Queue is empty, so we're done.