|  |  |  |
| --- | --- | --- |
| Vertex | Shortest distance from A | previous |
| A | 0 |  |
| B | ∞ |  |
| C | ∞ |  |
| D | ∞ |  |
| E | ∞ |  |
| F | ∞ |  |
| G | ∞ |  |

Visited=[ ] NotVisited=[A,B,C,D,E,F,G]

Start with A, visit neighbours

A to B= 0+5=5

A to C= 0+ 3= 3

Update the tables

|  |  |  |
| --- | --- | --- |
| Vertex | Shortest distance from A | previous |
| A | 0 |  |
| B | 5 | A |
| C | 3 | A |
| D | ∞ |  |
| E | ∞ |  |
| F | ∞ |  |
| G | ∞ |  |

Visited=[ A] NotVisited=[B,C,D,E,F,G]

Pick the next smallest of shortest distance from A which is C as new start vertex (**not visited yet**)

From C to B= 3+6= 9 do not update

From C to D = 3+ 4= 7 update

From C to F = 3+ 8= 11 update

|  |  |  |
| --- | --- | --- |
| Vertex | Shortest distance from A | previous |
| A | 0 |  |
| B | 5 | A |
| C | 3 | A |
| D | 7 | C |
| E | ∞ |  |
| F | 11 | C |
| G | ∞ |  |

Visited=[ A, C] NotVisited=[B,D,E,F,G]

Pick the next smallest of shortest distance from A which is B as new start vertex

From B to D = 5+2 = 7 do not update

From B to C = 5+6=11 do not update

From B to E = 5+ 7= 12 update

|  |  |  |
| --- | --- | --- |
| Vertex | Shortest distance from A | previous |
| A | 0 |  |
| B | 5 | A |
| C | 3 | A |
| D | 7 | C |
| E | 12 | B |
| F | 11 | C |
| G | ∞ |  |

Visited=[ A, C, B] NotVisited=[D,E,F,G]

Pick the next smallest of shortest distance from A which is D as new start vertex

From D to B = 7+ 2= 9 do not update

From D to C = 7+ 4=11 do not update

From D to E=7+3=10 update

From D to F= 7+ 6= 13 do not update

|  |  |  |
| --- | --- | --- |
| Vertex | Shortest distance from A | previous |
| A | 0 |  |
| B | 5 | A |
| C | 3 | A |
| D | 7 | C |
| E | 10 | D |
| F | 11 | C |
| G | ∞ |  |

Visited=[ A, C, B, D] NotVisited=[E,F,G]

Pick the next smallest of shortest distance from A which is E as new start vertex

From E to B= 10+7=17 do not update

From E to D = 10+ 3= 13 do not update

From E to F=10+5=15 do not update

From E to G=10+5=15 update

|  |  |  |
| --- | --- | --- |
| Vertex | Shortest distance from A | previous |
| A | 0 |  |
| B | 5 | A |
| C | 3 | A |
| D | 7 | C |
| E | 10 | D |
| F | 11 | C |
| G | 15 | E |

Visited=[ A, C, B, D, E] NotVisited=[F,G]

Pick the next smallest of shortest distance from A which is F as new start vertex

From F to C= 11+8 no

From F to D=11+6 no

From F to E=11+5=15 no

From F to G=11+4=15 no

|  |  |  |
| --- | --- | --- |
| Vertex | Shortest distance from A | previous |
| A | 0 |  |
| B | 5 | A |
| C | 3 | A |
| D | 7 | C |
| E | 10 | D |
| F | 11 | C |
| G | 15 | E |

Visited=[ A, C, B, D, E, F] NotVisited=[G]

Pick the next smallest of shortest distance from A which is G as new start vertex

No

|  |  |  |
| --- | --- | --- |
| Vertex | Shortest distance from A | previous |
| A | 0 |  |
| B | 5 | A |
| C | 3 | A |
| D | 7 | C |
| E | 10 | D |
| F | 11 | C |
| G | 15 | E |