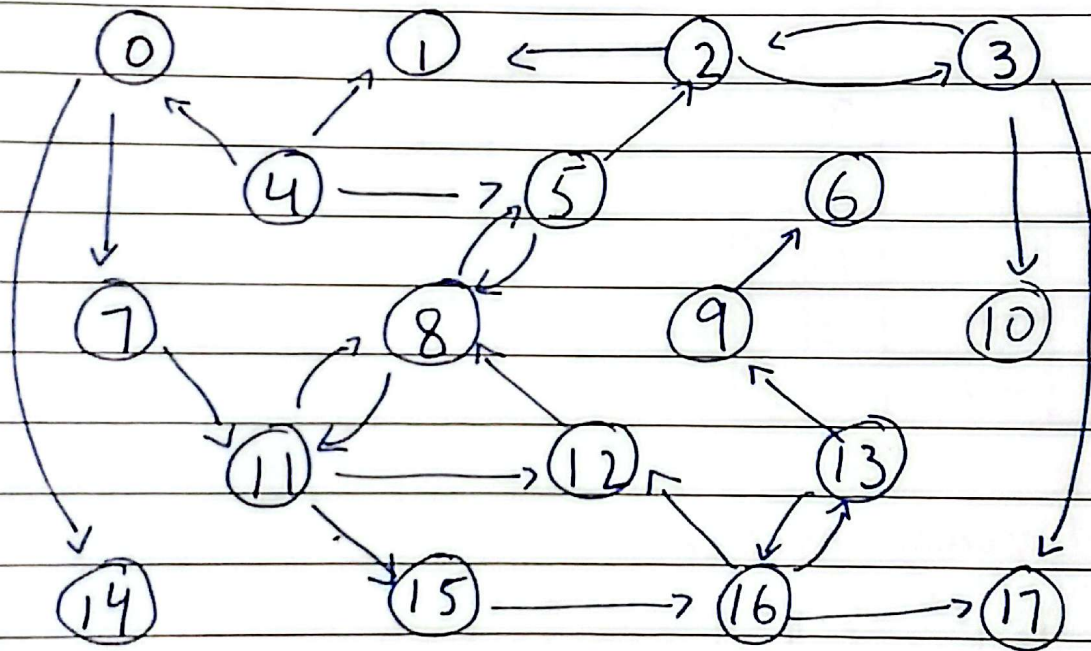


Syed Muhammad Arman  
Mehdi Kazmi

F2022332069

D1

Given Graph:

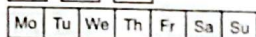


Part 1:

→ Adjacency List:

0		→	1		→	14	✓
1		→		✓			
2		→	1		→	3	✓





Date \_\_\_\_\_

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→ Adjacency matrix:

[illegible]



	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
7	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
8	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
9	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0
12	0	0	0	0	0	0	0	0	1	0	0	0		1	0	1	0	0
13	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## Part 2: DFS

→ Visited Array:

• Initial Array:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

vertices

• Array after visiting:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	4	6	7	3	5	15	2	10	14	8	11	12	13	18	17	16	9

Order of visiting nodes



→ Stack Contents:

0	7	4	1	5	2	3	10	17	18	11	12	13	9	6	16	15	4
---	---	---	---	---	---	---	----	----	----	----	----	----	---	---	----	----	---

  
 stack starting from here (Base of Stack) (Top of stack) →

→ Visited Array Explanation: ☒

u ⇒ 0 ⇒ {7, 14}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>7</del></td> <td style="width: 50%;">14</td> </tr> </table>	<del>7</del>	14
<del>7</del>	14		
u ⇒ 7 ⇒ {4, 11}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>4</del></td> <td style="width: 50%;">11   14</td> </tr> </table>	<del>4</del>	11   14
<del>4</del>	11   14		
u ⇒ 7 4 ⇒ {0, 1, 5}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>1</del></td> <td style="width: 50%;">5   11   14</td> </tr> </table>	<del>1</del>	5   11   14
<del>1</del>	5   11   14		
u ⇒ 7 1 ⇒ { }	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>5</del></td> <td style="width: 50%;">11   14</td> </tr> </table>	<del>5</del>	11   14
<del>5</del>	11   14		
u ⇒ 7 5 ⇒ {2, 8}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>2</del></td> <td style="width: 50%;">8   11   14</td> </tr> </table>	<del>2</del>	8   11   14
<del>2</del>	8   11   14		
u ⇒ 7 2 ⇒ {1, 3}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>3</del></td> <td style="width: 50%;">8   11   14</td> </tr> </table>	<del>3</del>	8   11   14
<del>3</del>	8   11   14		
u ⇒ 7 3 ⇒ {2, 10, 17}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>10</del></td> <td style="width: 50%;">17   8   11   14</td> </tr> </table>	<del>10</del>	17   8   11   14
<del>10</del>	17   8   11   14		
u ⇒ 7 10 ⇒ { }	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>17</del></td> <td style="width: 50%;">8   11   14</td> </tr> </table>	<del>17</del>	8   11   14
<del>17</del>	8   11   14		
u ⇒ 7 17 ⇒ { }	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>8</del></td> <td style="width: 50%;">11   14</td> </tr> </table>	<del>8</del>	11   14
<del>8</del>	11   14		

u ⇒ 8 ⇒ {5, 11}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>11</del></td> <td style="width: 50%;">14</td> </tr> </table>	<del>11</del>	14
<del>11</del>	14		
u ⇒ 7 11 ⇒ {8, 12, 15}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>12</del></td> <td style="width: 50%;">15   14</td> </tr> </table>	<del>12</del>	15   14
<del>12</del>	15   14		
u ⇒ 7 12 ⇒ {8, 13, 15}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>13</del></td> <td style="width: 50%;">15   14</td> </tr> </table>	<del>13</del>	15   14
<del>13</del>	15   14		
u ⇒ 7 13 ⇒ {9, 12, 16}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>9</del></td> <td style="width: 50%;">16   15   14</td> </tr> </table>	<del>9</del>	16   15   14
<del>9</del>	16   15   14		
u ⇒ 7 9 ⇒ {6, 8}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>6</del></td> <td style="width: 50%;">16   15   14</td> </tr> </table>	<del>6</del>	16   15   14
<del>6</del>	16   15   14		
u ⇒ 7 6 ⇒ {3}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>16</del></td> <td style="width: 50%;">15   14</td> </tr> </table>	<del>16</del>	15   14
<del>16</del>	15   14		
u ⇒ 7 16 ⇒ {12, 13, 17}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>15</del></td> <td style="width: 50%;">14</td> </tr> </table>	<del>15</del>	14
<del>15</del>	14		
u ⇒ 7 15 ⇒ {16}	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 50%;"><del>14</del></td> <td style="width: 50%;"></td> </tr> </table>	<del>14</del>	
<del>14</del>			

$u \Rightarrow 14 \Rightarrow \{ \}$

$\rightarrow$  Traversal order:

$[0, 7, 4, 1, 5, 2, 3, 10, 17, 8, 11, 12, 13, 9, 6, 16, 15, 14]$

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