

Tugas Jaminan Perangkat Lunak

Latihan Basis Path




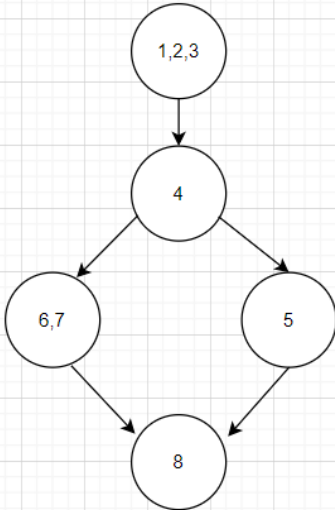
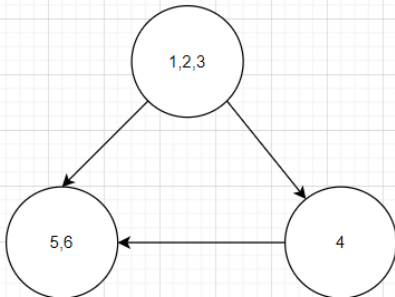
Disusun Oleh :

Hikari Aufa Yafi - A11.2021.13217

Yohanes Dimas Pratama - A11.2021.13254

Mohammad Ridwan Pratama - A11.2021.13435

Muhammad Rahmanditya HW - A11.2021.13591

no	program	graph	Cyclomatic Complexity :
1.	<pre> 1 Begin 2 a:=5; {1} 3 b:=10; {2} 4 writeln; {3} 5 end </pre>		$V(G) = \text{edges} - \text{nodes} + 2p = 0 - 1 + (2.1) = -1 + 2 = 1$ Path 1 = 1,2,3,4,5
2.	<pre> 1 Begin 2 a:=5; {1} 3 b:=10; 4 if a> b then {2} 5 a:= 2 {3} 6 else 7 b:=a;{4} 8 end {5} </pre>		$V(G) = \text{edges} - \text{nodes} + 2p = 5 - 5 + (2.1) = 0 + 2 = 2$ path 1 = 1,2,3,4,5,8 path 2 = 1,2,3,4,6,7,8
3.	<pre> 1 Begin 2 a:= 5; {1} 3 if a> 3 then {2} 4 a:=2; 5 writeln(a); 6 end </pre>		$V(G) = \text{edges} - \text{nodes} + 2p = 3 - 3 + (2.1) = 0 + 2 = 2$ path 1 = 1,2,3,5,6 path 2 = 1,2,3,4,5,6

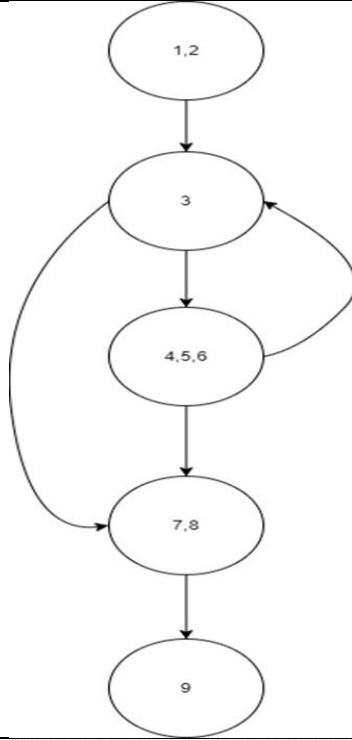
4.	<pre> 1 begin 2 a := 5; 3 while a < 10 do 4 begin 5 a := a + 1; 6 end; 7 a := a + 10; 8 writeln; 9 end; </pre>	<pre> graph TD 12((1,2)) --> 3((3)) 3 --> 456((4,5,6)) 456 --> 3 456 --> 7((7)) 7 --> 89((8,9)) </pre>	$V(G) = E - N + 2$ $= 5 - 5 + 2$ $= 2$ <p>path 1 = 1,2,3,7,8,9</p> <p>path 2 = 1,2,3,4,5,6,3,7,8,9</p>
5.	<pre> 1 Begin 2 for a := 5 to 10 do 3 begin 4 writeln(a); 5 end; 6 writeln; 7 end. </pre>	<pre> graph TD 12((1,2)) --> 345((3,4,5)) 345 --> 12 345 --> 67((6,7)) </pre>	$V(G) = E - N + 2 =$ $3 - 3 + 2 = 2$ <p>path 1 = 1,2,3,4,5,6,7</p> <p>path 2 = 1,2,3,4,5,1,2,3,4,5,6,7</p>
6.	<pre> 1 Begin 2 a := 5; 3 repeat 4 a := a + 1; 5 until a > 10; 6 a := a + 20; 7 writeln; 8 end. </pre>	<pre> graph TD 12((1,2)) --> 3((3)) 3 --> 4((4)) 4 --> 5((5)) 5 --> 3 5 --> 678((6,7,8)) </pre>	$V(G) = E - N + 2$ $= 5 - 5 + 2$ $= 2$ <p>path 1 = 1,2,3,4,5,6,7,8</p> <p>path 2 = 1,2,3,4,5,3,4,5,6,7,8</p>

7.	<pre> 1 begin 2 a := 5; 3 b := 8; 4 c := 4; 5 if (a>b) or (a>c) then 6 begin 7 a := 2; 8 end 9 else 10 begin 11 if b = a then 12 b := a; 13 else 14 b := c; 15 end; 16 readln; 17 end; </pre>	<pre> graph TD 1((1,2,3,4,5)) --> 6((6,7,8)) 1 --> 9((9,10,11)) 6 --> 16((16,17)) 9 --> 12((12)) 9 --> 13((13,14)) 12 --> 15((15)) 13 --> 15 15 --> 16 </pre>	$V(G) = E - N + 2P$ $= 8 - 7 + 2(1) = 3$ <p>path 1 = 1,2,3,4,5,6,7,8,16,17</p> <p>path 2 = 1,2,3,4,5,9,10,11,12,15,16,17</p> <p>path 3 = 1,2,3,4,5,9,10,11,13,14,15,16,17</p>
8.	<pre> 1 ✓ begin 2 a := 5; 3 while a < 10 do 4 begin 5 ✓ if a > 5 then 6 writeln(a); 7 a := a + 1; 8 end; 9 a := a + 10; 10 writeln; 11 end. </pre>	<pre> graph TD 1((1,2)) --> 3((3)) 3 --> 4((4,5)) 4 --> 7((7,8)) 7 --> 9((9,10)) 9 --> 11((11)) 11 --> 3 4 --> 6((6)) 6 --> 7 </pre>	$V(G) = E - N + 2P$ $= 8 - 7 + 2 \cdot 1 = 3$ <p>path 1 = 1,2,3,11</p> <p>path 2 = 1,2,3,4,5,7,8,9,10,3,11</p>
9.	<pre> 1 begin 2 readln (b); 3 for a := 1 to 10 do 4 begin 5 if a > b then 6 writeln(a) 7 else writeln(b); 8 end; 9 writeln(a, b); 10 end. </pre>	<pre> graph TD 1((1,2,3)) --> 4((4,5)) 4 --> 6((6)) 4 --> 7((7)) 6 --> 8((8)) 7 --> 8 8 --> 9((9)) 9 --> 10((10)) 4 --> 1 </pre>	$V(G) = E - N + 2P$ $= 8 - 7 + 2(1) = 3$ <p>path 1 = 1,2,3,9,10</p> <p>path 2 = 1,2,3,4,5,6,8,9,10</p> <p>path 3 = 1,2,3,4,5,7,8,9,10</p>

```

1  begin
2      readln (a);
3      repeat
4          if a > 3 then
5              writeln(a)
6              a := a+1;
7          until a > 5;
8          writeln(a);
9      end.

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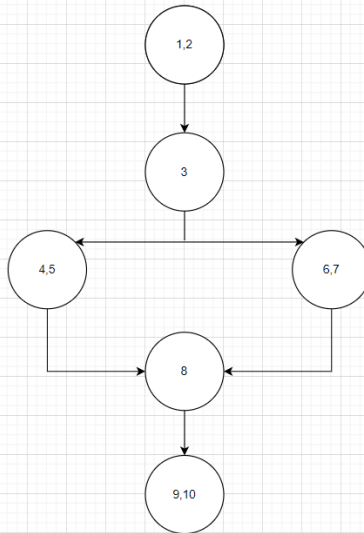


$$V(G) = E - N + 2P$$
$$= 6 - 5 + 2(1) = 3$$

```

1  Begin
2  | Readln(a,b);    {1}
3  | Case a of      {2}
4  | 1:if a > b then
5  | |   writeln(a); {3}
6  | 2:if a < b then
7  | |   writeln(b); {4}
8  | |   end;        {5}
9  |   writeln(a,b);
10 | end,            {6}

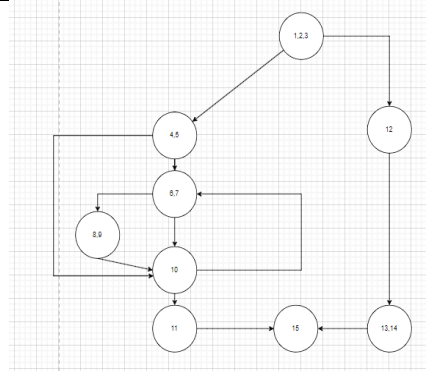
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$$V(G) = E - N + P$$

$$= 6 - 6 + (2.1) = 0 + 2 = 2$$

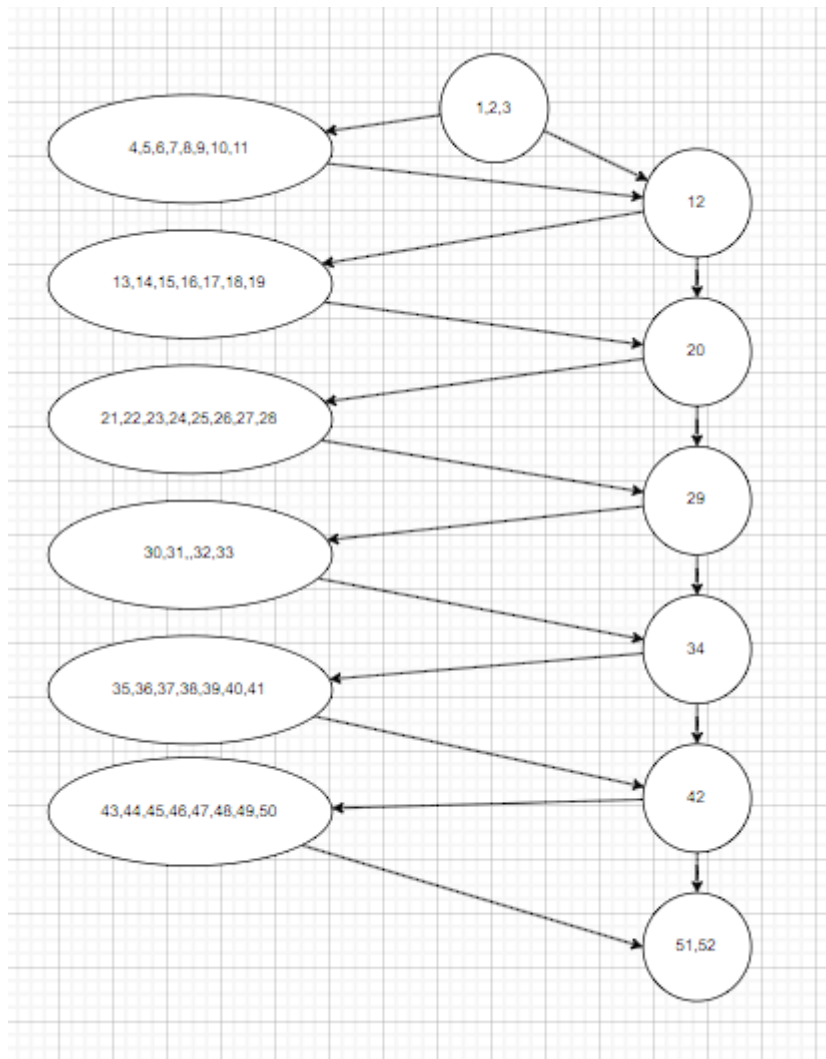
```
1 begin
2     a := 5;
3     if a > 4 then
4         begin
5             while a < 10 do
6                 begin
7                     if a > 5 then
8                         writeln(a);
9                     a := a + 1;
10                end;
11            end;
12        end
13    else
14        a := a + 10;
15        writeln;
16 end.
```



$$12 - 9 + 2(1) = 5$$

			<p>1,2,3,4,5,6,7,10,6,7,8,9,10,11,15</p> <p>1,2,3,12,13,14,15</p>
13.	<pre> 1 begin 2 a := 5; 3 b := 8; 4 c := 4; 5 if a > b then 6 begin 7 a := 2; 8 end 9 else 10 begin 11 case b of 12 1 : b := a; 13 2 : b := a + 1; 14 else 15 b := c; 16 end; 17 end; 18 writeln(a,b); 19 end. </pre>	<p>V</p>	<p>$V(g) = E - N + 2P$</p> <p>$13 - 11 + 2(1) = 4$</p> <p>Path :</p> <p>Path 1 = 1,2,3,4,5,6,7,8,18,19</p> <p>Path 2 = 1,2,3,4,5,9,10,11,12,13,14,15,16,17,18, 19</p>
14.	<pre> 1 begin 2 readln(m, n); 3 a := 1; 4 if 2 * m > n then 5 b := n - m 6 else 7 b := m; 8 i := 0; 9 while i <= b do 10 begin 11 a := (n - i) * a + (i + 1); 12 i := i + 1; 13 end; 14 writeln(a); 15 end. </pre>		<p>$V(G) = E - N + 2P$</p> <p>$10 - 8 + 2(1) = 4$</p> <p>Path :</p> <p>Path 1 = 1,2,3,4,5,13,14,9,15</p> <p>Path 2 = 1,2,3,4,6,7,8,9,10,11,12,13, 14,9,15</p>

15.



Cyclomatic Complexity :

10 edges, 13 nodes

$$10 - 8 + 2(1) = 4$$

Path :

1, 2, 3, 4, 5, 13, 14, 9, 15

1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 9, 15

```
1  begin
2  readln( x, y, w, A, B );
3  if x > 0 then
4  begin
5      theta := 0.0;
6      phi := arctan(y/x)+theta;
7      r := sqrt( x*x+y*y );
8      r := exp( w * ln(r));
9      a := r * cos( w * phi);
10     b := r * sin( w * phi);
11 end;
12 if (x < 0) and (y >= 0) then
13 begin
14     theta := 3.1;
15     phi := arctan(y/x)+theta;
16     r := sqrt( x*x+y*y );
17     r := exp( w * ln(r));
18     a := r * cos( w * phi);
19     b := r * sin( w * phi);
20 end;
21 if (x<0) and (y<0) then
22 begin
23     theta := 3.1;
24     phi := arctan(y/x)+theta;
25     r := sqrt( x*x+y*y );
26     r := exp( w * ln(r));
27     a := r * cos( w * phi);
28     b := r * sin( w * phi);
29 end;
```



```

21  if (x<0) and (y<0) then
22  begin
23      theta := 3.1;
24      phi := arctan(y/x)+theta;
25      r := sqrt( x*x+y*y );
26      r := exp( w * ln(r));
27      a := r * cos( w * phi);
28      b := r * sin( w * phi);
29  end;
30  if (x=0) and (y= 0) then
31  begin
32      a := 0.0;
33      b := 0.0;
34  end;
35  if (x = 0) and (y < 0) then
36  begin
37      phi := 1.5;
38      r := sqrt( x*x+y*y );
39      r := exp( w * ln(r));
40      a := r * cos( w * phi);
41      b := r * sin( w * phi);
42  end;
43  if (x = 0) and (y > 0) then
44  begin
45      phi := -1.5707963;
46      r := sqrt( x*x+y*y );
47      r := exp( w * ln(r));
48      a := r * cos( w * phi);
49      b := r * sin( w * phi);

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50      end;
51      writeln(a,b)
52  end.
53

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