Assignment 6: Write a java code which takes C function as input <input.c> and produces its Control Flow Graph (CFG) as output.

|  |  |
| --- | --- |
| **Input File:-**  # include <stdio.h>  Void fun(int a, int b, int y)  {  if(a>5) // If statement  {  a = 3;  }  else  {  b = 5;  }  while(y < 20)  {  /\*  Nested if condition inside while loop  \*/  if(y == 3)  {  y++;  }  else if(y == 5)  {  y+=3;  }  } //End of while loop  } | A=3  b=5  while  If 2  If 3  Y++  Y+=3  End  If 1  **CFG:-** |

**Adjacency Matrix (Output Format):-**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 (if 1) | 2 (A=3) | 3 (b=5) | 4 (while) | 5 (if 2) | 6 (y++) | 7 (if 3) | 8 (y=+3) | 9 (end) |
| 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 5 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 8 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Note:-

1. C function may also contain some comment lines (Single line or multiple lines).
2. Generate Output as an adjacency matrix.