ASSIGNMENT #3

DUE DATE: 7/11/2023 (AT 23.55)

Question #1

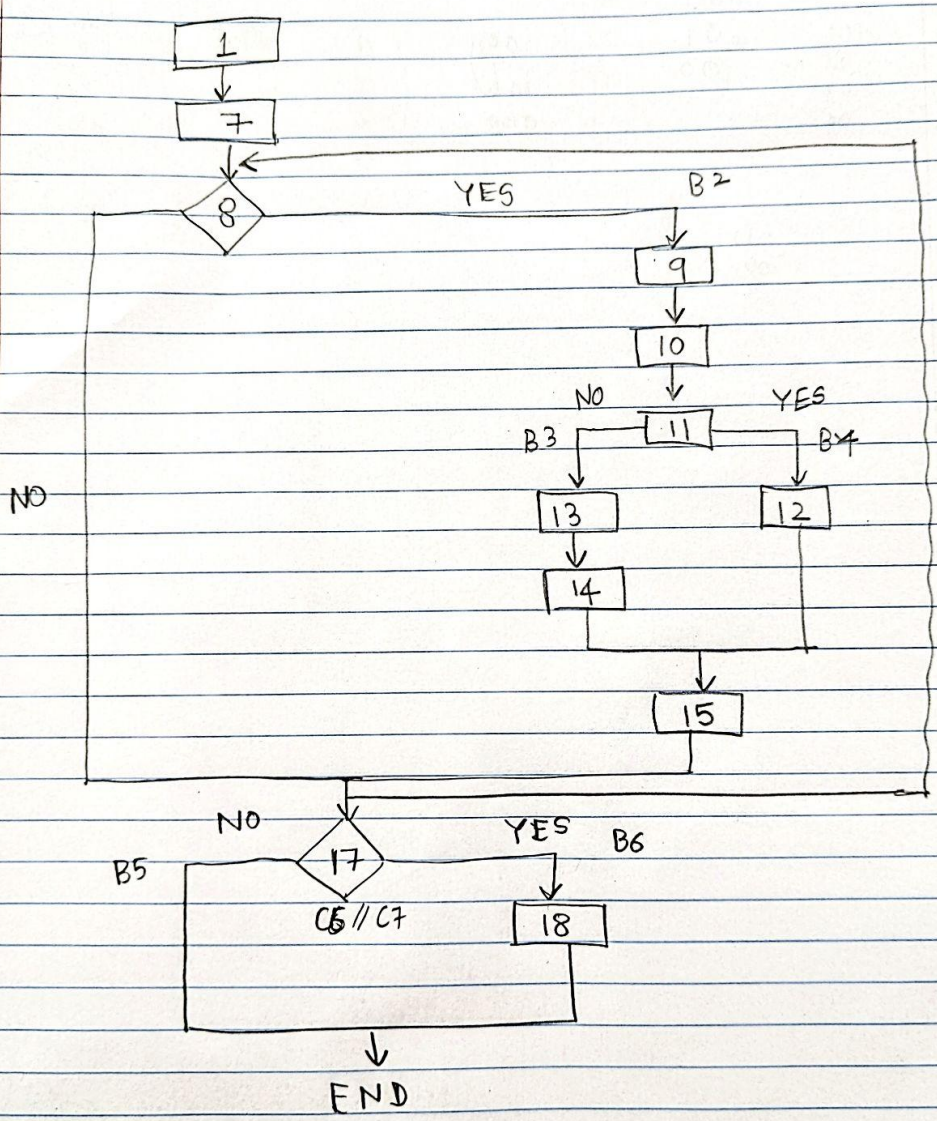
Given is the following program

```
    void main ()
{
    1.  int n,x,y,i,flag, a;
    2.  cin >> a; // input a
    3.  cin >> x ; // input x
    4.  cin >> y; // input y
    5.  cin >> n  ; // input n
    6.  i=3;
    7.  flag = 1;

    C1 C2 C3

    8.  while ((i < n) || ((flag <= 0)&& (a!=y)))

        {

    9.  a++;
    10. y=a;

    // C4

    11. if ((a = =y)) then

    12. {flag= 2;}
13. else
    14. {flag = 2};
15. i=i+1;
16. }
    // C6 C7
17. if ((n > i) && (flag == 0))
18. {cout << “We did not find anything”;} // output
}
```

1. Create a flow diagram and perform branch testing – provide test cases and indicate clearly which statements/branches are covered by your test bases - below an example of a flow diagram. **If a statement/branch/condition cannot be covered by your test case, clearly state which statement/branch/condition and why!**

SCM

Question 1



Test Cases:

#1 { n=1, i=3}

=> Branch coverage :{B1, B5} = 2/6 = 33.3%

=> Statement coverage: 9/18 = 50%

#2 {n=4, i=3}

=> Branch coverage :{B2, B4, B5} = 3/6 = 50%

=> Statement coverage: 15/18 = 83.3%

2. Perform multiple condition testing for the program in Question #1. Test cases should be presented as follows.

b.) Multiple Condition Testing

Test Cases	i<n	flag<=0	A == y	a!=y	n>i	flag==0
i=3, n=1	F	F	T	F	F	F
i=3, n=5	T	F	T	F	F	F

Question #2

Given is the following statement: your new boss states the following: “Given that our organization is using a test-driven development approach, where we write black-box test cases prior to developing our software, there is no more need for white-box testing at the statement coverage criteria, since all the black-box test cases will automatically exercise all statements.

Do you agree/disagree with the statement?

Briefly justify your answer (1-2 sentences).

I disagree with the statement. While black-box testing is important for testing a software system's functionality from a user perspective, it doesn't guarantee complete coverage of all possible code paths and internal logic. White-box testing, such as statement coverage, is still essential to ensure thorough testing and uncover potential issues that may not be addressed by black-box testing alone.