

Assignment 4

Group Members

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Choose at least two decision statement with

- **Having 3 conditions in each**
- **Having operators as (>,<, >=, <=, ==, !=)**
- **Apply MCDC and implement test cases**
- **Define Test Oracle**
- **Apply Path prediction expressions**

Statement

```
public int scholarship(int fscMarks, int entryTestMarks , boolean hafizQuran){  
  
    if ( (fscMarks >=80 && entryTestMarks >=50) && hafizQuran ){  
        System.out.print("85% scholarship");  
        return 85;  
    }  
    else if ((fscMarks >=80 && entryTestMarks >=50) && !hafizQuran){  
        System.out.print("70% scholarship");  
        return 85;  
    }  
    else{  
        System.out.print("you are not eligible for scholarship");  
        return -1;  
    }  
  
}
```

1. (fscMarks >=80 && entryTestMarks >=50) && hafizQuran

1.1 Decision Statement

Input			Output
fscMarks	entryTestMarks	hafizQuran	
T	T	T	T
T	T	F	F
T	F	T	F
F	F	T	F

1.2 implement test cases

Input			output
fscMarks	entryTestMarks	hafizQuran	(fscMarks >=80 && entryTestMarks >=50) && hafizQuran
85	78	True	85
90	60	False	-1
80	40	True	-1
40	46	True	-1

2. (fscMarks >=80 && entryTestMarks >=50) && !hafizQuran

2.1 Decision Statement

Input			Output
fscMarks	entryTestMarks	hafizQuran	
T	T	T	F

T	T	F	T
T	F	T	F
F	F	T	F

2.2. implement test cases

Input			Output
fscMarks	entryTestMarks	hafizQuran	(fscMarks >=80 && entryTestMarks >=50) && !hafizQuran
85	78	True	-1
90	60	False	70
80	40	True	-1
40	46	True	-1

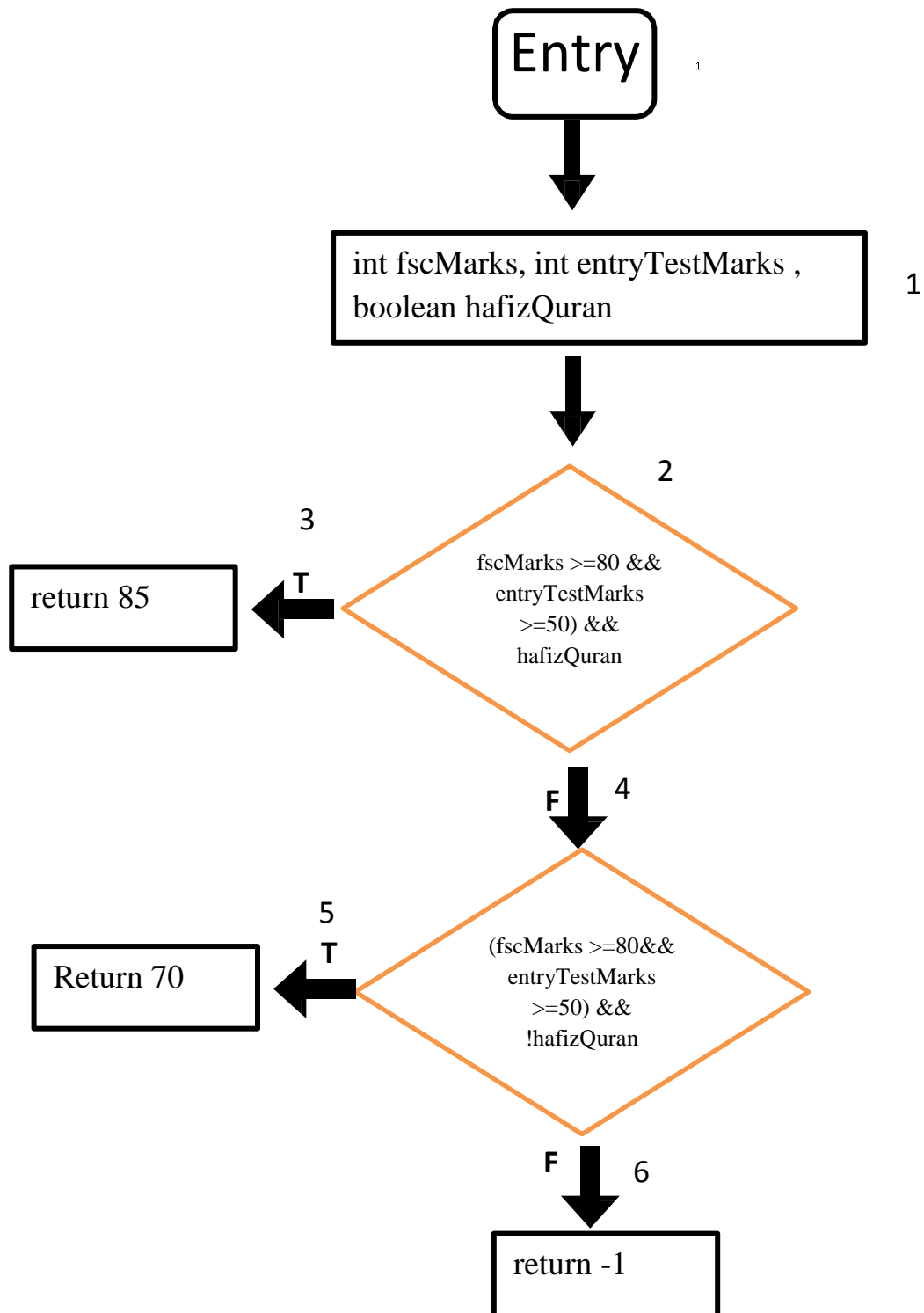
Path Prediction Expression

```

7 public int scholarship(int fscMarks, int entryTestMarks , boolean hafizQuran){
8     if ( (fscMarks >=80 && entryTestMarks >=50) && hafizQuran ){
9         System.out.print("85% scholarship");
10        return 85;
11    }
12    else if ((fscMarks >=80 && entryTestMarks >=50) && !hafizQuran){
13        System.out.print("70% scholarship");
14        return 85;
15    }
16    else{
17        System.out.print("you are not eligible for scholarship");
18        return -1;
19    }
20 }
21 }
22

```

Graph



Path 1

1→2→3

Expression

(fscMarks >=80 && entryTestMarks >=50) && hafizQuran

Path 2

1→2→4→5

Expression

(fscMarks >=80 && entryTestMarks >=50) && !hafizQuran

Path 3

1→2→4→6

Expression

(fscMarks <=80 || entryTestMarks <=50) || hafizQuran

Test Oracle

Test Path	Input			Original	Expected
	fscMarks	entryTestMarks	hafizQuran		
1→2→3	90	80	True	85	85
1→2→4→5	85	70	False	70	70
1→2→4→6	60	70	True	-1	-1