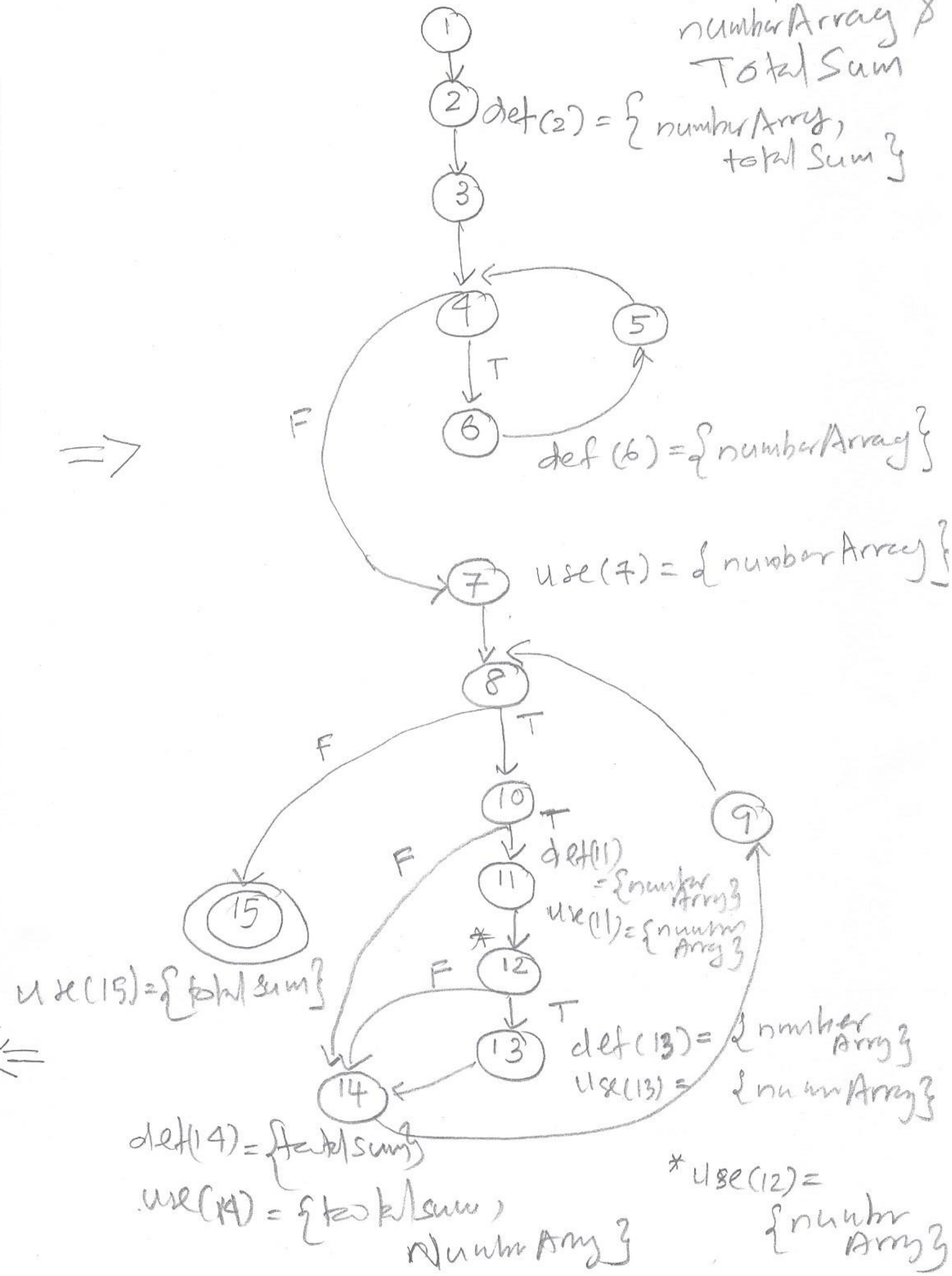
```
public static boolean IsValidMod10Number(String  number) — (1)
  {
        int [] numberArray = new int[number.length()];   } (2)
        boolean checkBit = false;                          }
        int sumTotal =0;                                   }
                 for(int i=0; i < number.length()  ; i++)       (3) i=0; (4) i < number.length(); (5) i++
                 {
                         numberArray[i] = (int) number.charAt(i);  (6)
                 }
                 for(int index = numberArray.length -1 ; index >= 0 ; index--)   (7) (8) (9)
                 {
                         if(checkBit)  → (10)
                         {
                         numberArray[index]  *=2;  — (11)
                                 if(numberArray[index] > 9)  — (12)
                                 {
                                  numberArray[index] -= 9;  — (13)
                                 }
                         }
                  sumTotal += numberArray[index];   } (14)
                  checkBit = !checkBit;             }
                 }
           return sumTotal % 10 ==0;  (15)
}
```

DU-path for numberArray & TotalSum



DU-Pairs

Variable	DU-pair
totalsum	(2, 14) (2, 15) (14, 14) (14, 15)
number Array	(2, -), (6,7), (6, 11) (11, 12), (11, 13), ([6, 11, 13]+, 14) (or)

Du - paths

totalsum:

pair(2,14) P1: 2 → 3 → 4 → 7 → 8 → 15

pair(2,15) P2(1): 2 → 3 → 4 → [6 → 5 → 4]* → 7 → 8 → 10 → 11 → 14 → 9 → 8 → 15

P2(2): 2 → 3 → 4 → [6 → 5 → 4]* → 7 → 8 → [10 → 11 → 12 → 13 → 14 → 9 → 8]* → 15
[10 → 11 → 12 → 14 → 9 → 8]* → 15

P2(3):

pair(14,14): No path

pair(14,15) P1(3): 14 → 15

P3 is part of P2

Compromized paths

P1: Empty string

P2(1): String with one digit

P2(2): string with at least two digits and the second digit > 4

P2(3): String with atleast two digits and all digits are less than < 5

Test cases

Test case #	Test data (input)	expected output (totalsum)		
1 (P_1)	number = ""	0		
2 ($P_{2.1}$)	number = "6"	6		
3 ($P_{2.2}$)	number = "1321"	10	←	(1+4+3+2)
4 ($P_{2.3}$)	number = "1567"	17	←	(7+3+5+2)