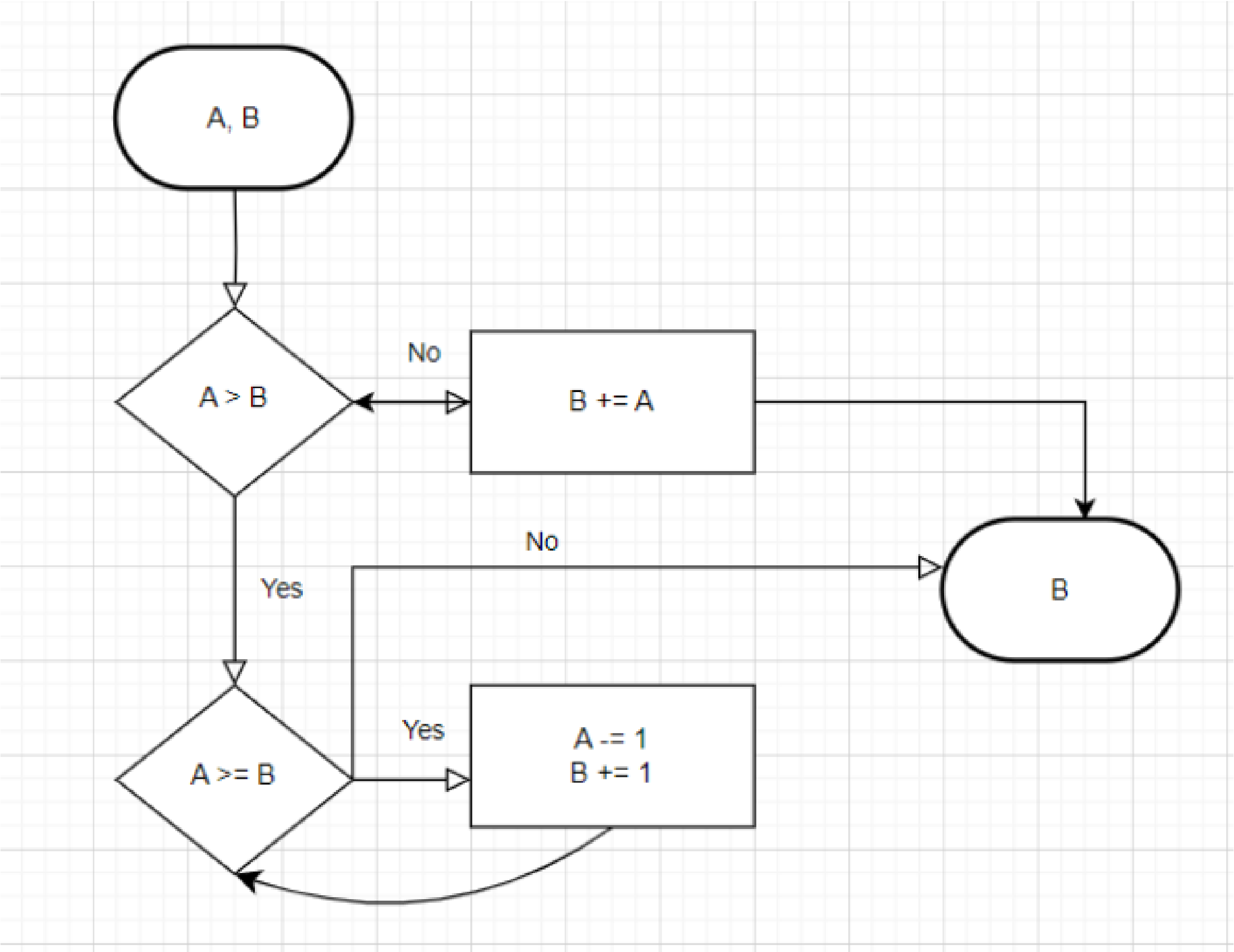
Q1

1,

```
def func1(a, b):
  if a>b:
    while a>=b:
       a-=1
       b+=1
  else:
    b+=a
  return b

a = int(input("a = "))
b = int(input("b = "))

print(func1(a,b))
```

2,



3,

- TC1: (3,2)
- a = 3
- b = 2
- 3

  - Statement coverage: line 1,2,3,4,5,8 -> 6/8 = 75%
  - Decision coverage: 1/2 = 50%

- TC2: (3,4)
- a = 3
- b = 4
- 7

Statement coverage: line 1,2,6,7,8 -> 5/8 = 62,5%

- Decision coverage: 1/2 = 50%

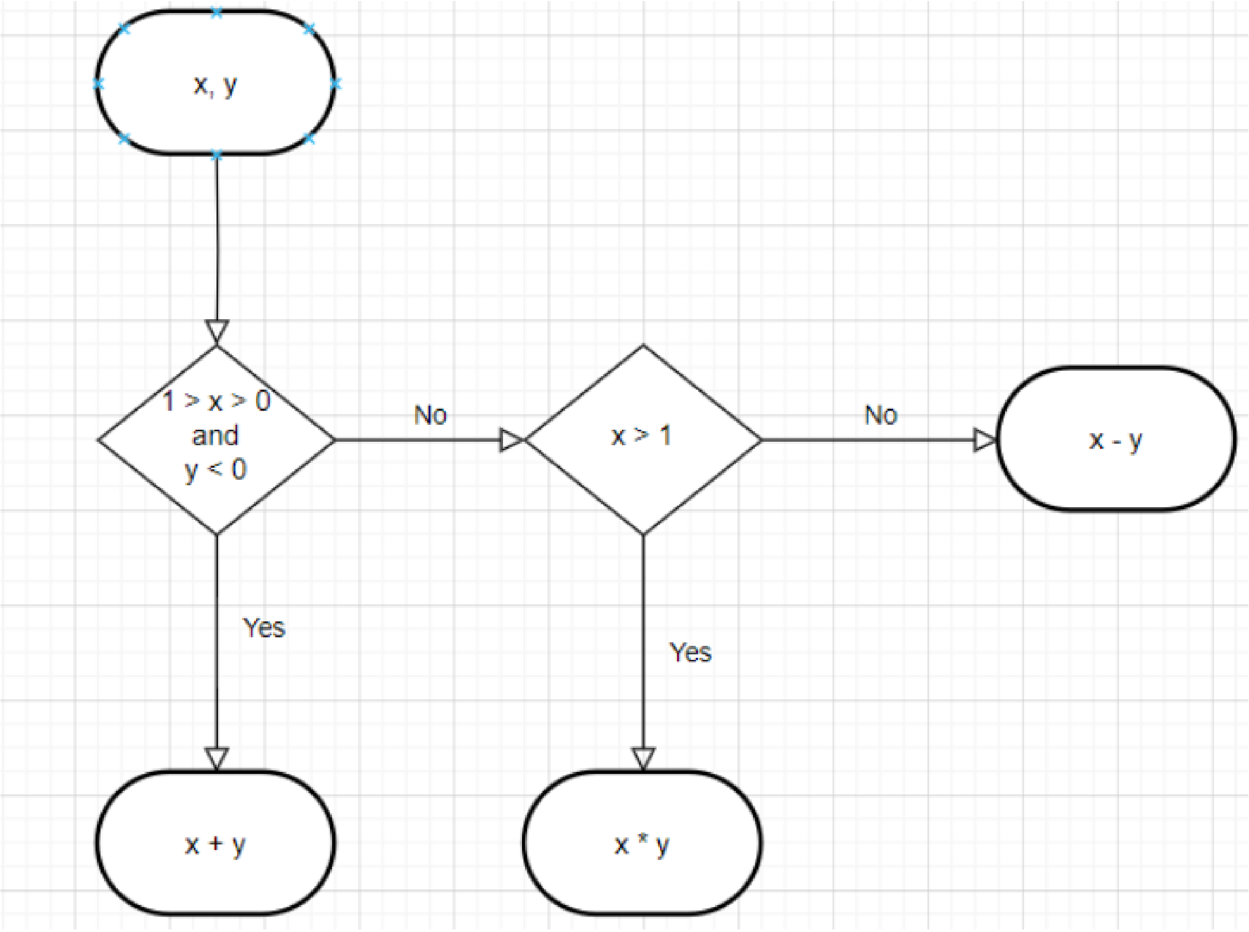
4.To get 100% decision coverage, I choose TC1(3,2) and TC2(3,4)

Q2,

1,

```
def func2(x,y):
     if((1 > x > 0) and (y < 0)):
          return x + y
     elif(x > 1):
          return x*y
     else:
          return x-y

x = int(input("Enter x: "))
y = int(input("Enter y: "))

print(func2(x,y))
```

2,



3,

- TC1: (0.5,-4)
- Enter x : 0.5
- Enter y : -4
- -3.5
    - Statement coverage: line 1,2,3 -> 3/7 = 42,9%
    - Decision coverage: 1/3 = 33.3%
- TC2: (5,10)
- Enter x : 5
- Enter y : 10
- 50
    - Statement coverage: line 1,2,4,5 -> 4/7 = 57,1%
    - Decision coverage: 1/3 = 33.3%

4.

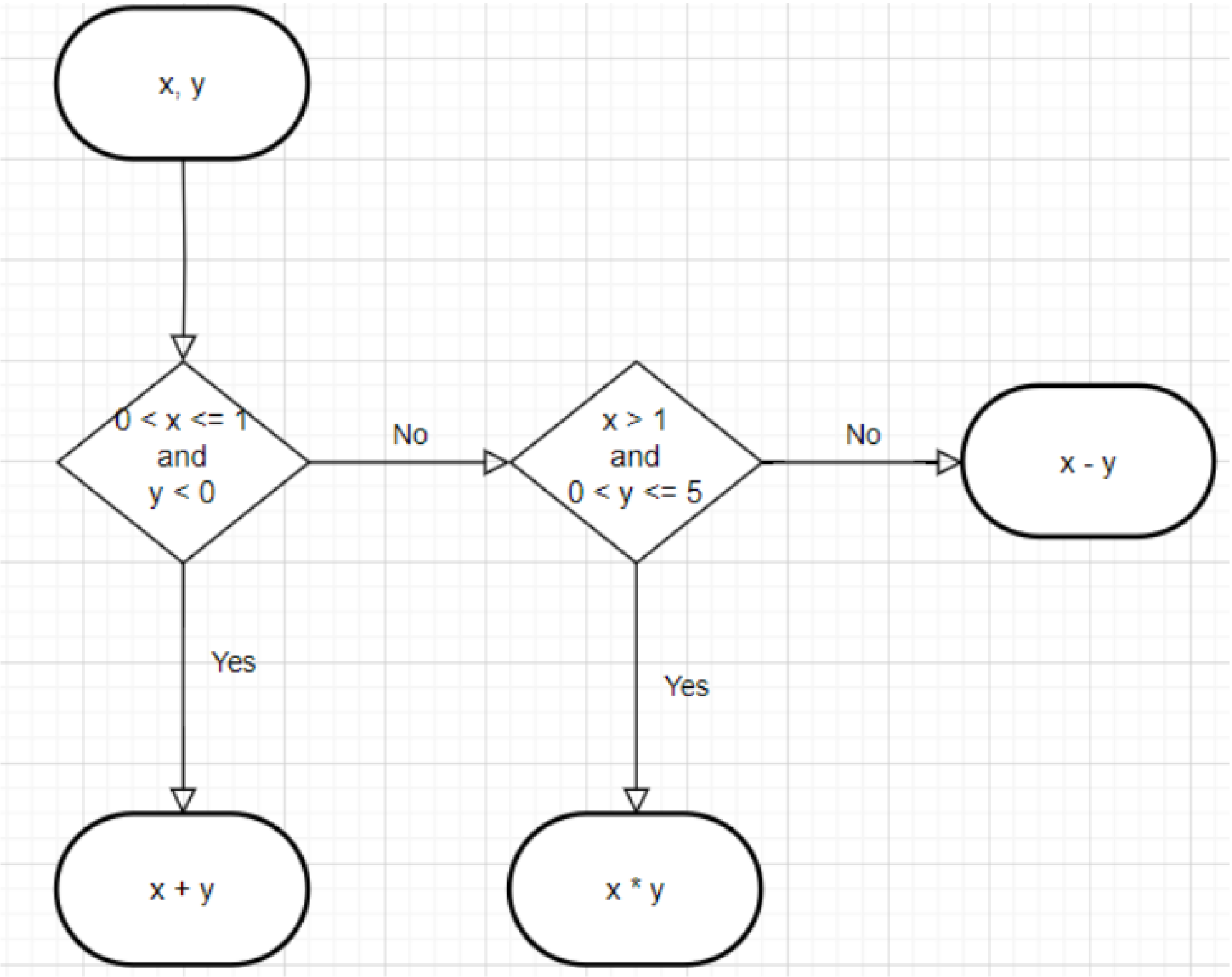
To get 100% decision coverage, I choose TC1(0.5,-4); TC2(5,10); TC3(-4,1)

Q3

1,

```
def func3(x,y):
     if((0 < x <= 1) and (y < 0)):
          return x + y
     elif((x > 1) and (0 < y <= 5)):
          return x * y
     else:
          return x - y

x = int(input("Enter x: "))
y = int(input("Enter y: "))

print(func3(x,y))
```

2,



3,

- TC1(0.5, -1):
- Enter x : 0.5
- Enter y : -1
- -0.5

    - Statement coverage: line 1,2,3 -> 3/7 = 42,9%
    - Decision coverage: 1/3 = 33.3%
- TC2(6,3):
- Enter x = : 6
- Enter y : 3
- 18

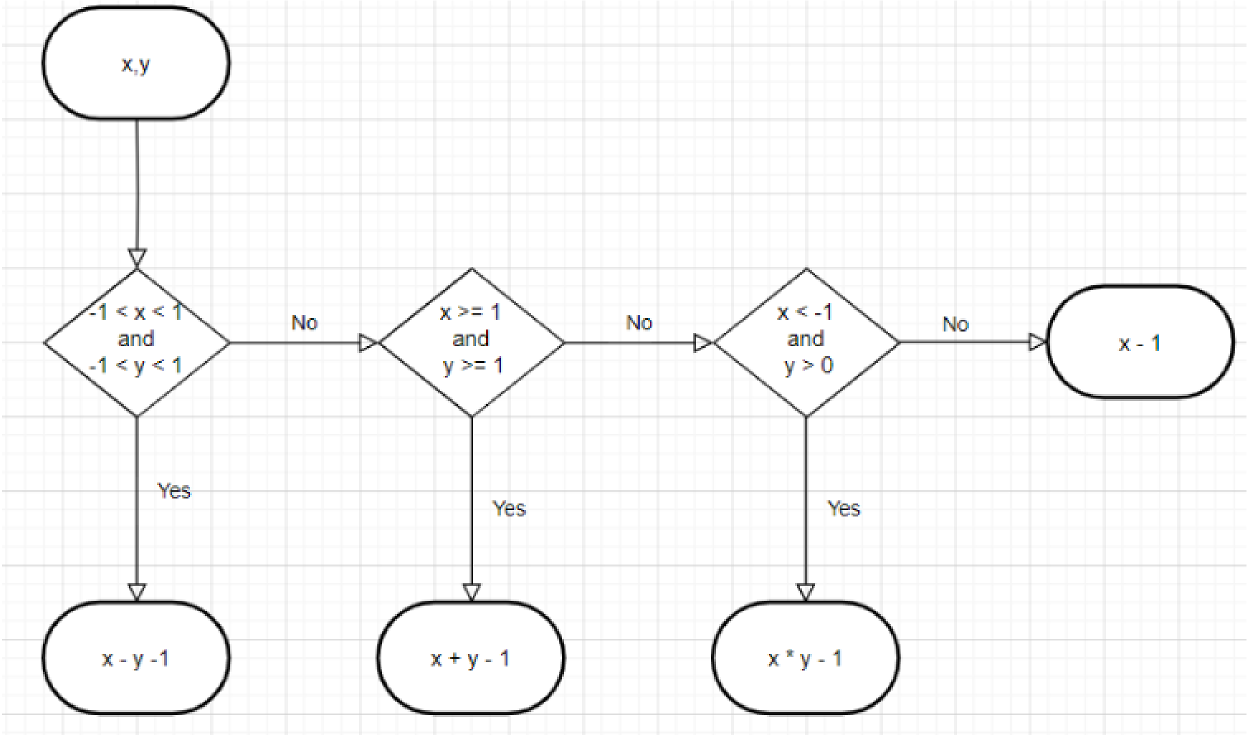
    - Statement coverage: line 1,2,4,5 -> 4/7= 57,1%
    - Decision coverage: 1/3 = 33.3%

Q4

1,

```
def func4(x,y):
     if((-1<x<1) and (-1<y<1)):
          return x-y-1
     elif((x>=1) and (y>=1)):
          return x+y-1
     elif((x < -1) and (y>0)):
          return x*y-1
     else:
          return x-1

x = float(input("Enter x: "))
y = float(input("Enter y: "))

print(func4(x,y))
```

2,



3,

- TC1(0,0):

- Enter x : 0
- Enter y : 0
- -1

    - Statement coverage: line 1,2,3 -> 3/9 = 33.3%
    - Decision coverage: 1/4 = 25%

- TC2(5,6):
- Enter x : 5
- Enter y : 6
- 10

    - Statement coverage: line 1,2,4,5 -> 4/9 = 44.4%
    - Decision coverage: 1/4 = 25%

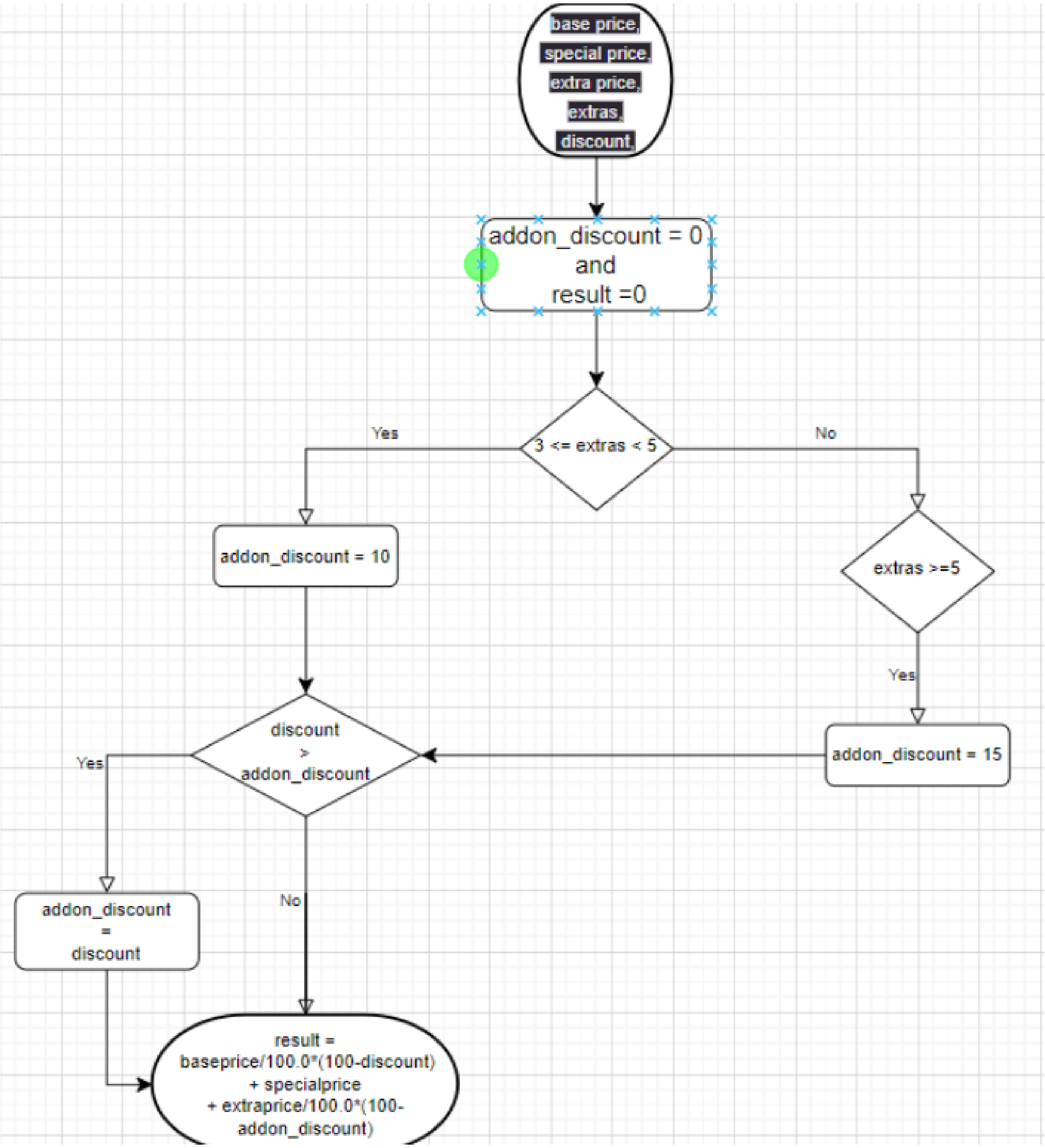
4.
To get 100% decision coverage, I choose TC1(0,0); TC2(5,6); TC3(-4,4); TC4(-5,-1)

Q5

1,

```
def calculate_price(baseprice, specialprice, extraprice, extras,
discount):
    addon_discount = 0
    result = 0
    if ((extras >= 3) and (extras<5)):
        addon_discount = 10
    elif extras >= 5:
        addon_discount = 15
    if discount > addon_discount:
        addon_discount = discount
    result = baseprice/100.0*(100-discount) + specialprice + \
        extraprice/100.0*(100-addon_discount)
    return result

baseprice = float(input("Enter baseprice: "))
specialprice = float(input("Enter specialprice: "))
extraprice = float(input("Enter extraprice: "))
extras = int(input("Enter extras: "))
discount = float(input("Enter discount: "))

print(calculate_price(baseprice, specialprice, extraprice, extras,
discount))
```

2,

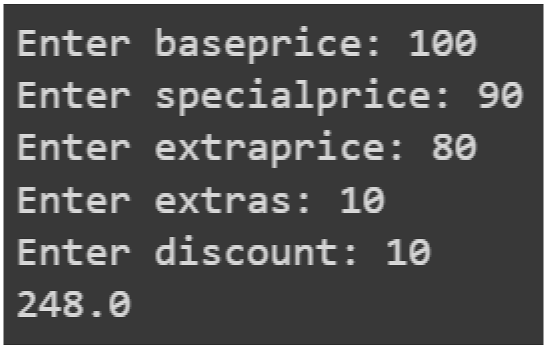


3,

- TC1(50,50,100,4,15):
- Enter baseprice : 50

- Enter specialprice : 50
- Enter extraprice : 100
- Enter extras : 4
- Enter discount : 15
- 177.5

    - Statement coverage: line 1,2,3,4,5,8,9,10,11 -> 9/11 = 81.82%
    - Decision coverage: 1/6 = 16.67%
- TC2(100,90,80,10,10):
- Enter baseprice : 100
- Enter specialprice : 90
- Enter extraprice : 80
- Enter extras : 10
- Enter discount : 10
- 248
-



```
Enter baseprice: 100
Enter specialprice: 90
Enter extraprice: 80
Enter extras: 10
Enter discount: 10
248.0
```

    - Statement coverage: line 1,2,3,4,6,7,8,10,11 -> 9/11 = 81.82%
    - Decision coverage: 1/6 = 16.67%

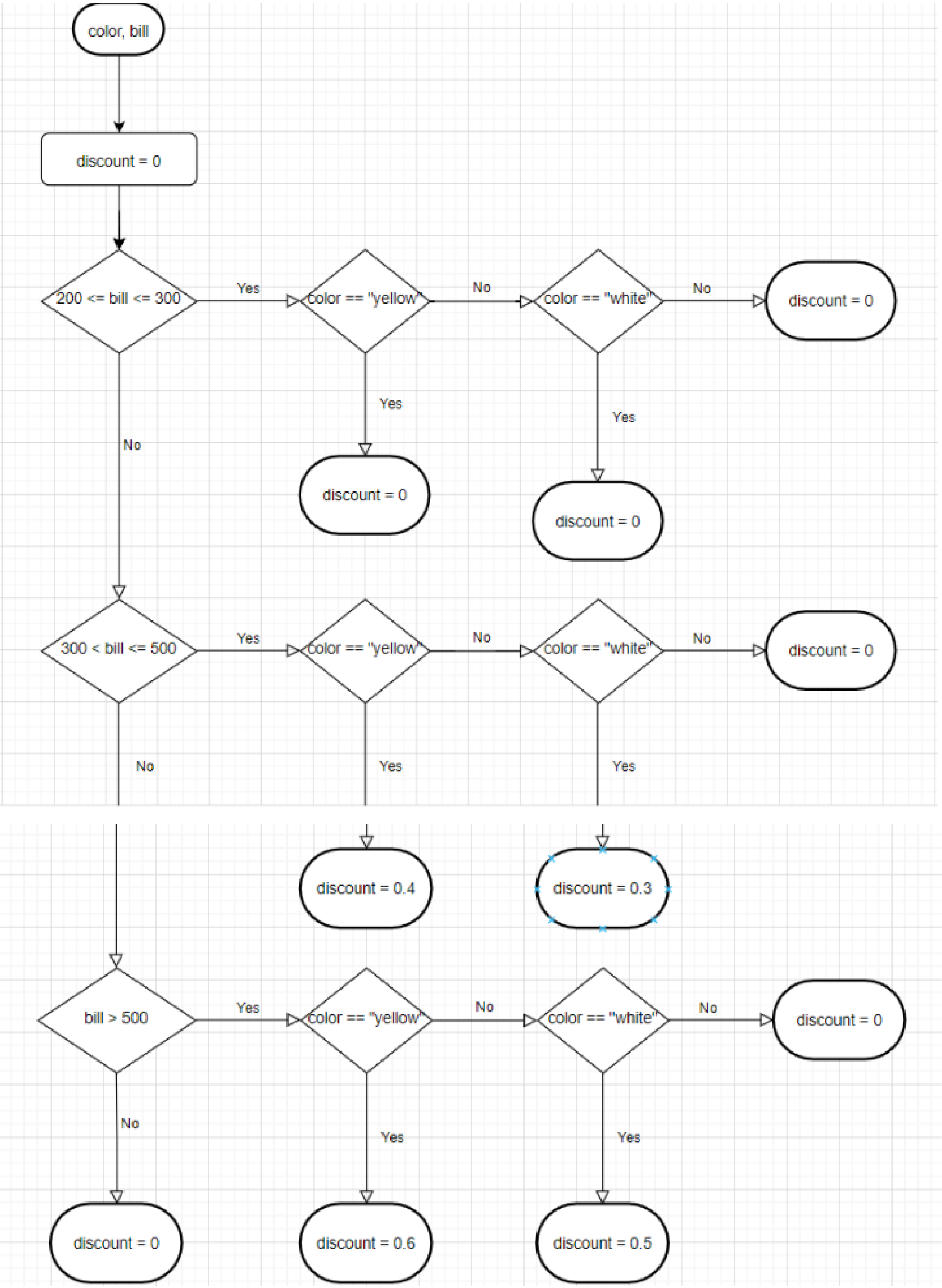
4.

To get 100% decision coverage, I choose TC1(50,50,100,4,15); TC2(100,90,80,10,10); TC3(50,50,100,4,8), TC4(100,90,80,10,20); TC5(100,90,80,1,20); TC6(100,90,80,2,0)

Q6

1

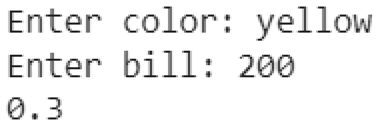
```
def calculate_price(color, bill):
    discount = 0
    if(200 <= bill <= 300):
        if(color == "yellow"):
            discount = 0.3
        elif(color == "white"):
            discount = 0
        else:
            discount = 0
    elif(300 < bill <= 500):
          if(color == "yellow"):
               discount = 0.4
          elif(color == "white"):
               discount = 0.3
          else:
               discount = 0
     elif(bill > 500):
          if(color == "yellow"):
               discount = 0.6
          elif(color == "white"):
               discount = 0.5
          else:
               discount = 0
     else:
          discount = 0
     return discount

color = input("Enter color: ")
bill = float(input("Enter bill: "))

print(calculate_price(color, bill))
```


color, bill
discount = 0
200 <= bill <= 300
Yes
color == "yellow"
No
color == "white"
No
discount = 0
Yes
discount = 0
Yes
discount = 0
No
300 < bill <= 500
Yes
color == "yellow"
No
color == "white"
No
discount = 0
No
Yes
Yes
discount = 0.4
discount = 0.3
bill > 500
Yes
color == "yellow"
No
color == "white"
No
discount = 0
No
Yes
Yes
discount = 0
discount = 0.6
discount = 0.5

3,

3,

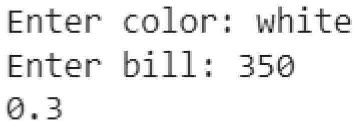
- TC1(yellow, 200)



```
Enter color: yellow
Enter bill: 200
0.3
```

Statement coverage: line 1,2,3,4,5,26 -> 6/26 = 23,07%
Decision coverage: 1/10 = 10%

- TC2 (white,350)



```
Enter color: white
Enter bill: 350
0.3
```

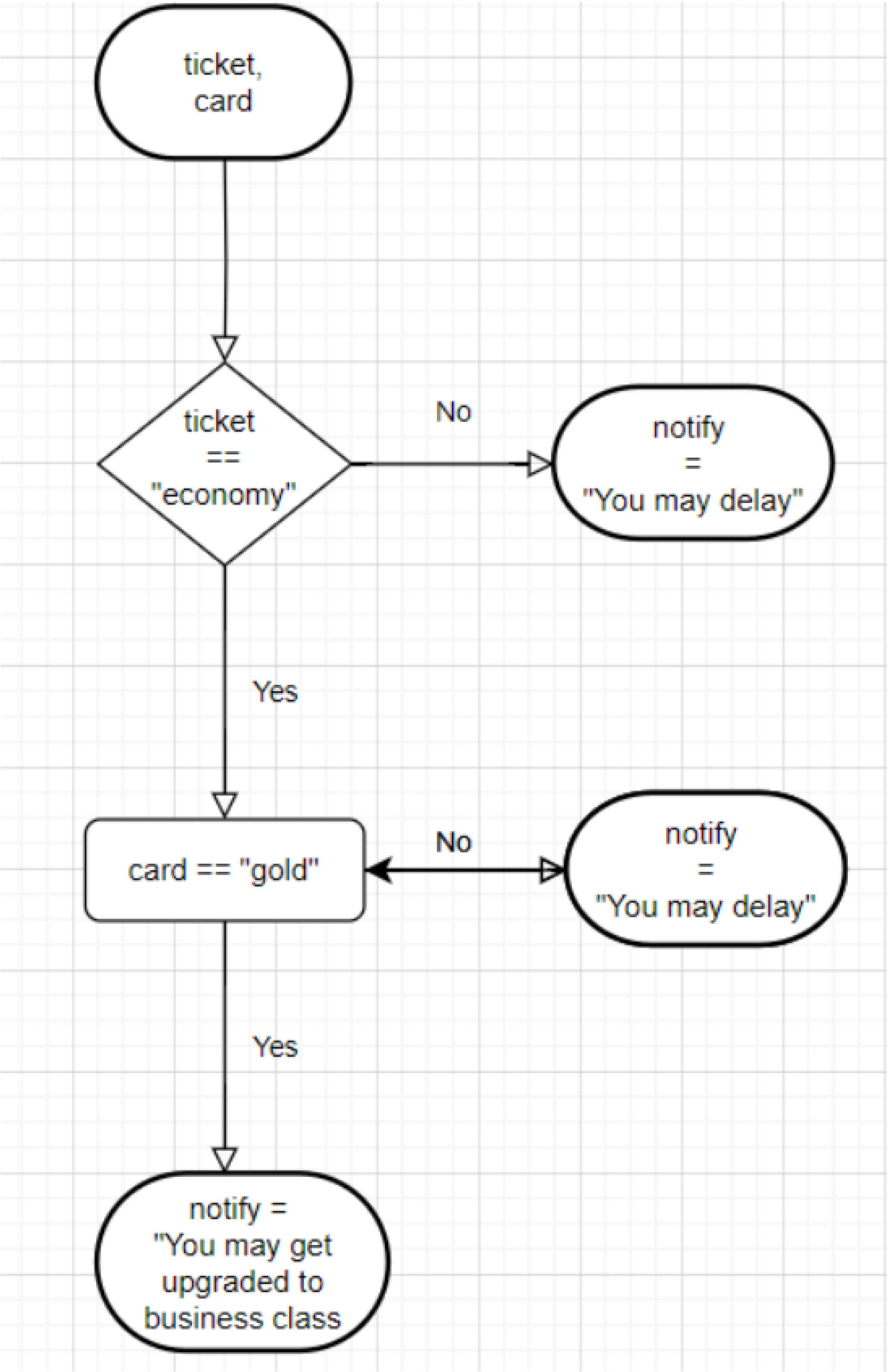
Statement coverage: line 1,2,3,4,6,10,11,13,14,26 -> 10/26 = 38,46%
Decision coverage: 1/10 = 10%

Q7

1,

```
def identify_class(ticket, card):
     notify = ""
     if(ticket == "economy"):
          if(card == "gold"):
              notify = "You may get upgraded to business class"
          else:
               notify = "You may delay"
     else:
          notify = "You may delay"

     return notify

ticket = input("Enter your ticket: ")
card = input("Enter your card: ")

print(identify_class(ticket, card))
```

2,


ticket,
card
ticket
==
"economy"
No
notify
=
"You may delay"
Yes
card == "gold"
No
notify
=
"You may delay"
Yes
notify =
"You may get
upgraded to
business class

3,

- TC1(economy,gold):
- Enter your ticket : economy
- Enter your card : gold
- You may get upgraded to business class

    - Statement coverage: line 1,2,3,4,5,10 -> 6/10 = 60%
    - Decision coverage: 1/3 = 33.3%
- TC2(economy,sliver):
- Enter your ticket : economy
- Enter your card : sliver
- You may delay

    - Statement coverage: line 1,2,3,4,6,7,10 -> 7/10 = 70%
    - Decision coverage: 1/3 = 33.3%

4, To get 100% decision coverage, I choose TC1(economy,gold); TC2(economy,sliver); TC3(cheap economy, sliver)