Exercise1.

Cource code:

```
1  a = int(input())
2  b = int(input())
3  if (a > b) :
4          while (a >= b) :
5              a -= 1
6              b += 1
7  else:b += a
8  print(b)
```

Statement coverage :

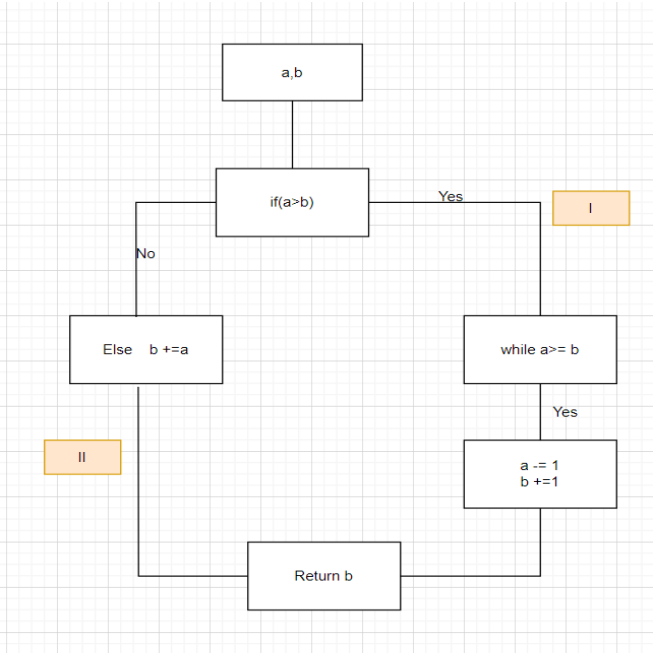
TC#1: A=4 B=4 => 1,2,7,8 =>coverage 4/8 = 50%

TC#2: A=4 B=3 => 1,2,3,4,5,6,8 =>coverage 7/8 = 87,5%

TC#3: A=3 B=4 => 1,2,7,8 =>coverage 4/8 = 50%

TC#1,2,3: 8/8=100%

Decision coverage:



	Decision coverage	Statement coverage
TC#1: A=4 B=4	1/2	4/8
TC#2: A=4 B=3	1/2	7/8
TC#3: A=3 B=4	1/2	4/8
TC#1,2,3:	100%	100%

Exercise2.

Cource code:

```
x = float(input())
y = float(input())
if (1 > x > 0) and y < 0:
    print( x+y )
elif x > 1:
    print( x*y )
else:
    print( x-y )

```

Statement coverage :

TC#1: x=0.5 y=-1 => 1,2,3,4 =>coverage 4/8 = 50%

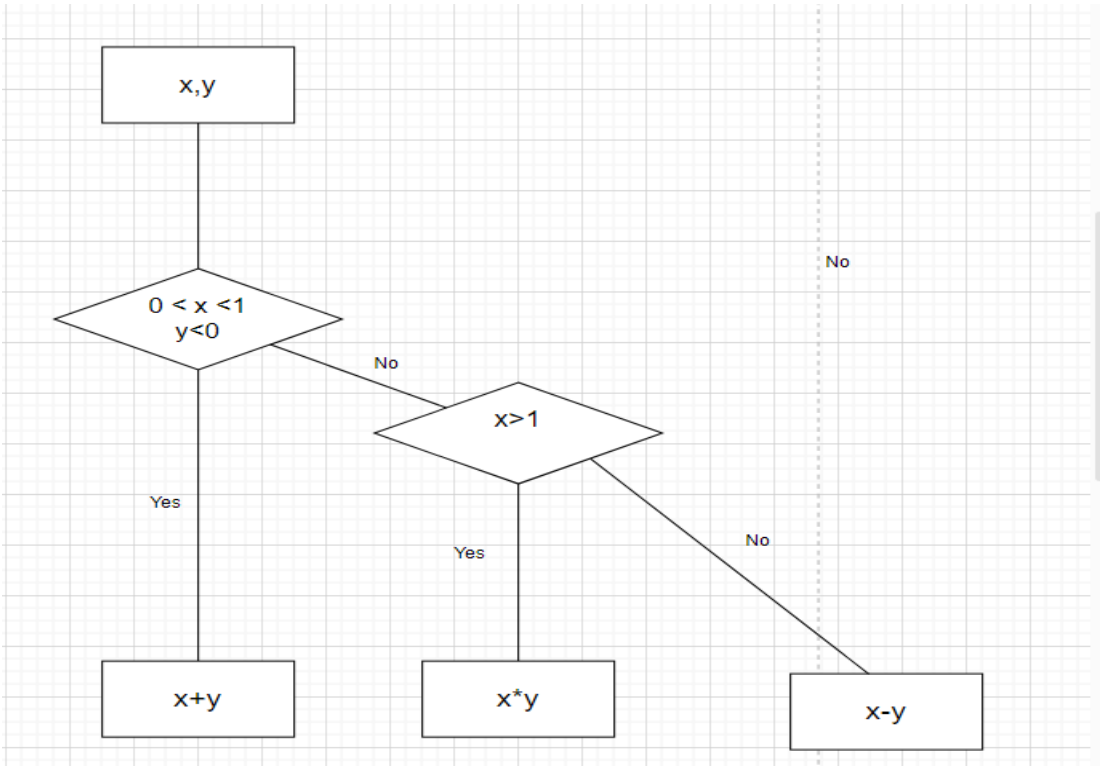
TC#2: x=3 y=3 => 1,2,3,5,6 =>coverage 5/8 = 62,5%

TC#3: x=-1 y=4 => 1,2,3,5,7,8 =>coverage 6/8 = 75%

TC#4: x=0.5 y=4 => 1,2,3,5,7,8 =>coverage 6/8 = 75%

TC#1,2,3,4: 8/8=100%

Decision coverage:



	Statement coverage	Decision coverage
TC#1: x=0.5 y = -1	4/8	1/3
TC#2: x=3 y = 3	5/8	1/3
TC#3: x=-1 y = 4	6/8	13
TC#4: x=0.5 y = 4	6/8	1/3
TC#1,2,3,4	100%	100%

Exercise3.

Cource code:

```
1  x = float(input())
2  y = float(input())
3  if (1 >= x > 0) and y < 0:
4      print( x+y )
5  elif x > 1 and 0 < y <= 5:
6      print( x*y )
7  else:
8      print( x-y )
9
```

Statement coverage :

TC#1: x=0.5 y=-1 => 1,2,3,4 =>coverage 4/8 = 50%

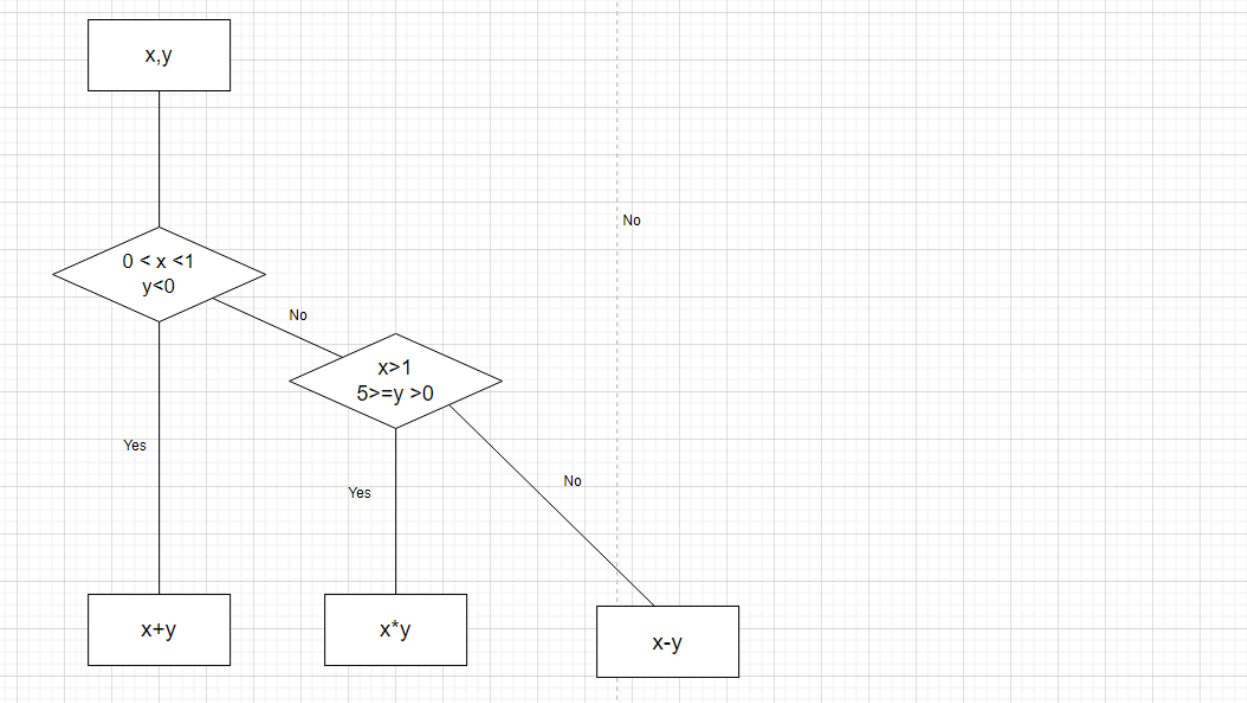
TC#2: x=3 y=3 => 1,2,3,5,6 =>coverage 5/8 = 62,5%

TC#3: x=-1 y=4 => 1,2,3,5,7,8 =>coverage 6/8 = 75%

TC#4: x=1 y=4 => 1,2,3,5,7,8 =>coverage 6/8 = 75%

TC#1,2,3,4: 8/8=100%

Decision coverage:



	Statement coverage	Decision coverage
TC#1: x=0.5 y = -1	4/8	1/3
TC#2: x=3 y = 3	5/8	1/3
TC#3: x=-1 y = 4	6/8	13
TC#4: x=1 y = 4	6/8	1/3
TC#1,2,3,4	100%	100%

Exercise4.

Cource code:

```
1    x = float(input())
2    y = float(input())
3    if (-1<x<1) and -1<y<1:
4        print( x-y-1 )
5    if (x>=1) and y>=1:
6        print( x+y-1 )
7    elif x <-1 and 0 < y :
8        print( x*y-1 )
9    else:
10       print( x-1 )
```

Statement coverage :

TC#1: x=0 y=0 => 1,2,3,4 =>coverage 4/10 = 40%

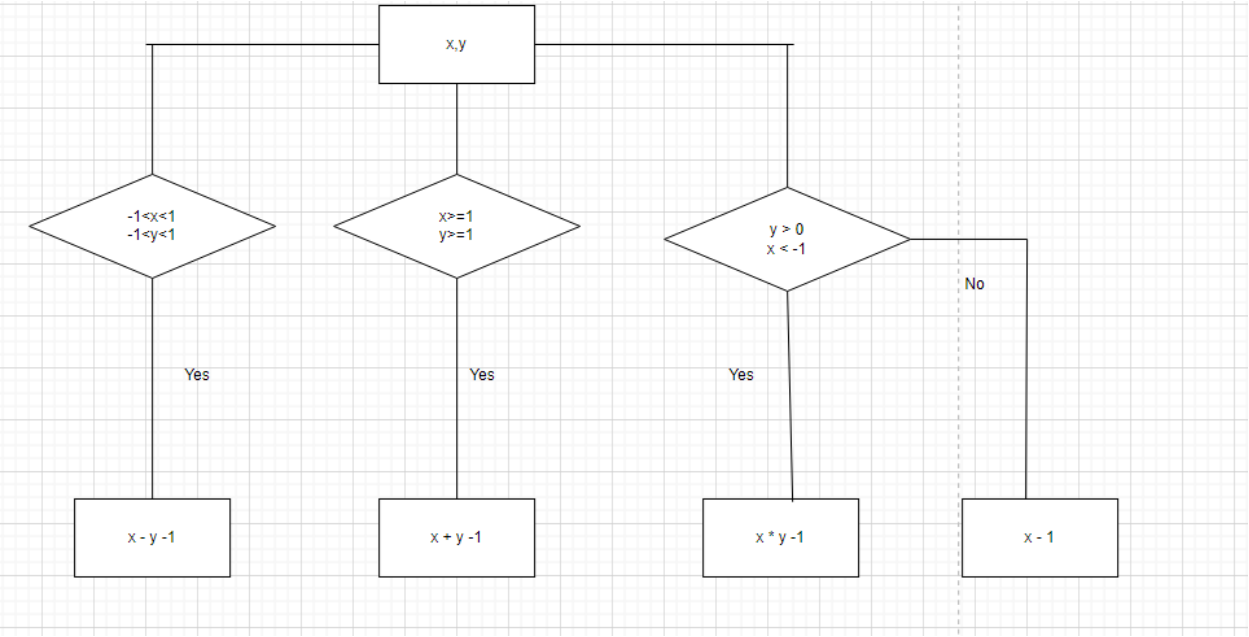
TC#2: x=1 y=1 => 1,2,3,5,6 =>coverage 5/10 = 50%

TC#3: x=-2 y=2 => 1,2,3,5,7,8 =>coverage 6/10 = 60%

TC#4: x=1 y=0 => 1,2,3,5,7,9,10 =>coverage 7/10 = 70%

TC#1,2,3,4: 10/10=100%

Decision coverage:



	Statement coverage	Decision coverage
TC#1: x=0 y = 0	4/10	1/4
TC#2: x=1 y = 1	5/10	1/4
TC#3: x=-2 y = 2	6/10	1/4
TC#4: x=1 y = 0	7/10	1/4
TC#1,2,3,4	100%	100%

Exercise6.

Cource code:

```python
card1 = "vang"
x= int(input())
card = str(input())
if(x >500):
    if( card == card1):
        x = x - x*0.06
    else : x = x - x*0.05
    print(x)
if(300 < x <=500):
    if( card == card1):
        x = x - x*0.04
    else : x = x - x*0.03
    print(x)
if( 200 <= x <= 300):
    if( card == card1):
        x = x - x*0.03
    print(x)
else: print(x)
```

Statement coverage :

TC#1: x=600 card= vang => 1,2,3,4,5,6,8 =>coverage 7/18 = 41.18%

TC#2: x=600 card= trang => 1,2,3,4,7,8 =>coverage 6/18 = 35.3%

TC#3: x=400 card=vang => 1,2,3,4,9,10,11,13 =>coverage 8/18 = 44.44%

TC#4: x=400 card=trang => 1,2,3,4 ,9,12,13 =>coverage 7/18 =41.18%

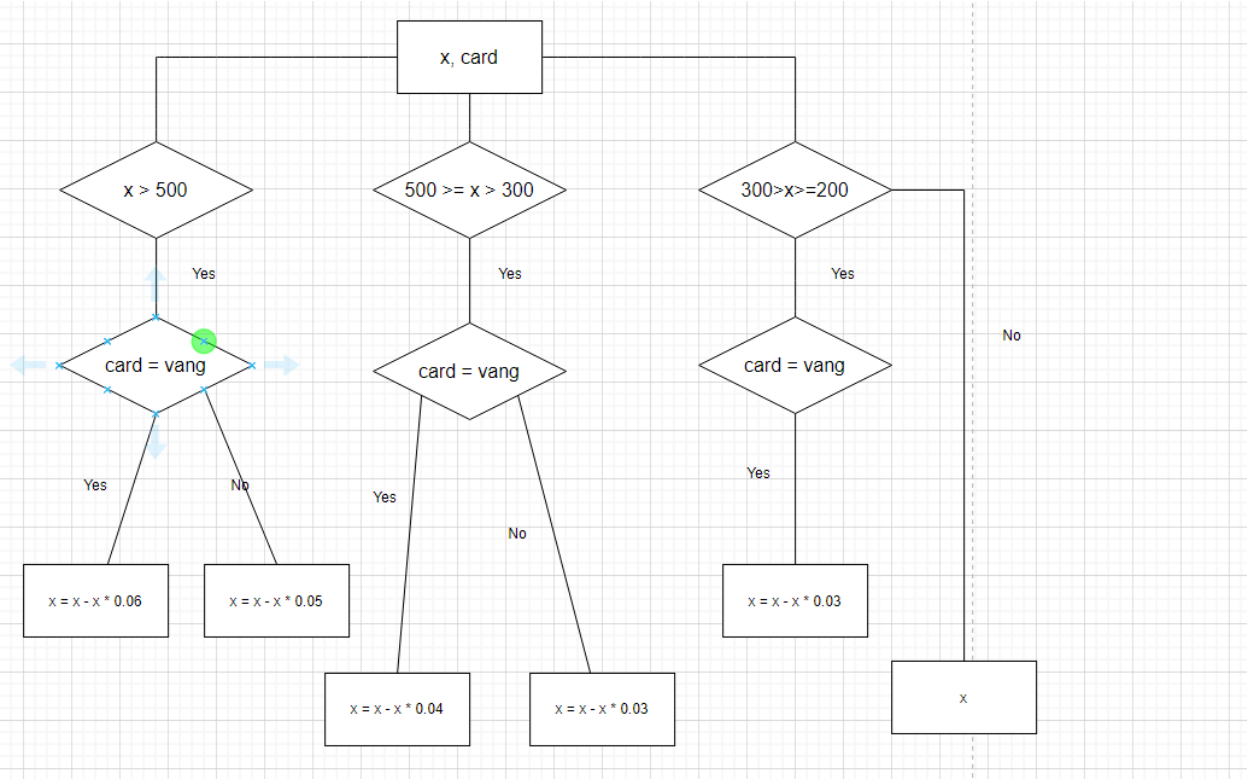
TC#5: x=250 card=vang => 1,2,3,4 ,9,14,15,16,17 =>coverage 9/18 =50%

TC#6: x=250 card=trang => 1,2,3,4 ,9,14,18 =>coverage 8/18 =41.18 %

TC#7: x=100 card= vang =>1,2,3,4,9,14,18 =>coverage 7/18 =41.18%

TC#1,2,3,4,5,6,7: 18/18=100%

Decision coverage:



	Statement coverage	Decision coverage
TC#1: x=600 card=vang	7/18	1/6
TC#2: x=600 card =trang	6/18	1/6
TC#3: x=400 card=vang	8/18	1/6
TC#4: x=400 card=trang	7/18	1/6
TC#5: x=250 card=vang	9.18	1/6
TC#6: x=250 card=trang	7/18	1/6
TC#7: x=100 card=vang	7/18	1/6

Exercise7.

Cource code:

```python
ticket1 = "vethuong"
the1 = "thevang"
chongoi1 =  "full"
ghengoi1 = "co"
tregio1 = "tregio"
ticket  = str(input())
the     = str(input())
# ghengoi = str(input())
chongoi = str(input())
tregio  = str(input())
if( ticket == ticket1 ) :
    if(the == the1) :
        ghengoi = "hangthuonggia"
        print(ghengoi)
    elif(chongoi == chongoi1 and tregio == tregio1):
        chongoi= "het"
    #     print(chongoi)
    # elif(tregio == tregio1):
    #     chongoi= "het"
        print(chongoi)
    else : print(ghengoi1)
else : print(ghengoi1)
```

Statement coverage :

TC#1:

```
PS D:\Ky5\SWT\Demo> & C:/Users/Admin/AppData/Local/Microsoft/WindowsApps/python3.10.exe d:/Ky5/SWT/Demo/S1.py
vethuong
ok
ok
ok
co
```

TC#2:

```
PS D:\Ky5\SWT\Demo>  & C:/Users/Admin/AppData/Local/Microsoft/WindowsApps/python3.10.exe d:/Ky5/SWT/Demo/S1.py
vethuonggia
ok
ok
ok
co
```

TC#3:

```
PS D:\Ky5\SWT\Demo> & C:/Users/Admin/AppData/Local/Microsoft/WindowsApps/python3.10.exe d:/Ky5/SWT/Demo/S1.py
vethuong
thevang
ok
ok
hangthuonggia
```

TC#4:

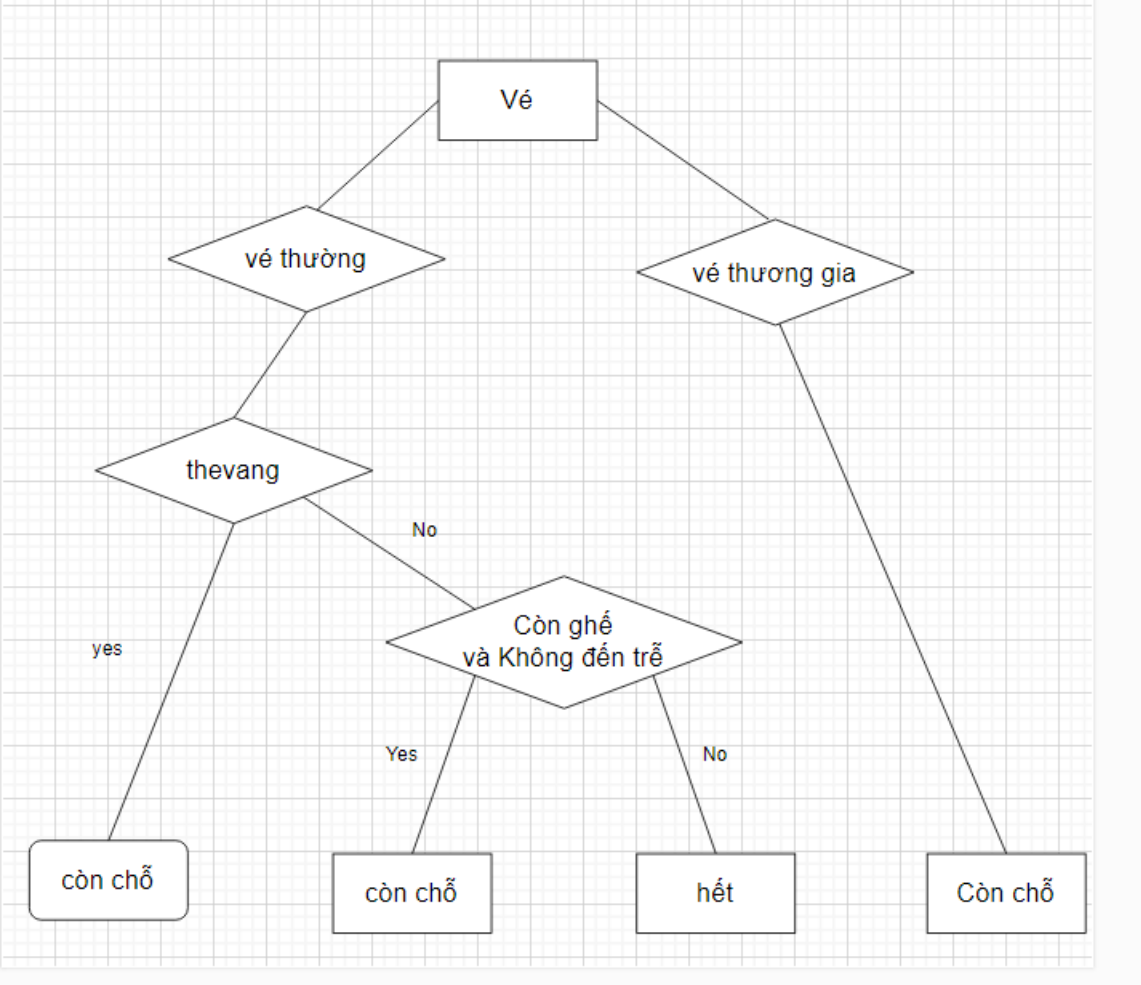
```
PS D:\Ky5\SWT\Demo> & C:/Users/Admin/AppData/Local/Microsoft/WindowsApps/python3.10.exe d:/Ky5/SWT/Demo/S1.py
vethuong
khongthevang
full
tregio
het
```

TC#5:

```
PS D:\Ky5\SWT\Demo> & C:/Users/Admin/AppData/Local/Microsoft/WindowsApps/python3.10.exe d:/Ky5/SWT/Demo/S1.py
vethuong
khongthevang
con
tregio
co
```

TC#1,2,3,4,5 coverage :100%

Decision coverage:



TC#1 vethuong , ok , ok, ok : 1/4

TC#2 vethuongia , ok , ok , ok : 1/4

TC#3 vethuong , thevang , ok, ok : 1/4

TC#4 vethuong , khongthevang , full, tregio : 1/4

TC#5 vethuong, khongthevang , con , tregio: 1/4

Exercise5.

Cource code:

```python
baseprice       = float(input())
specialprice    = float(input())
extraprice      = float(input())
discount        = float(input())
addon_discount  = float(input())
extras          = int(input())
reuslt = "0"
if( 5 > extras >= 3):
    addon_discount= 10
elif (extras >=5):
    addon_discount = 15
else : addon_discount = 0
if(discount > addon_discount) :
    addon_discount = discount
result = baseprice/100.0*(100-discount)+ specialprice  + extraprice/100.0*(100-addon_discount)
print(result)
```

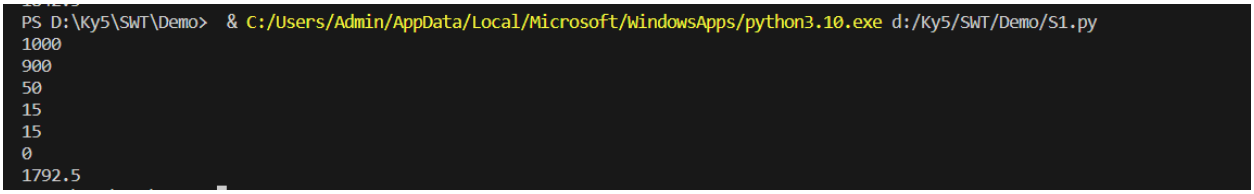
TC#1: baseprice =1000 , specialprice = 900 , extraprice = 50 , discount = 10 , addon_discount = 15 , extras = 6

=>1,2,3,4,5,6,7,8,10,11,13,15,16 =>13/16 =>81.25%

```
PS D:\Ky5\SWT\Demo> & C:/Users/Admin/AppData/Local/Microsoft/WindowsApps/python3.10.exe d:/Ky5/SWT/Demo/S1.py
1000
900
50
10
15
6
1842.5
```

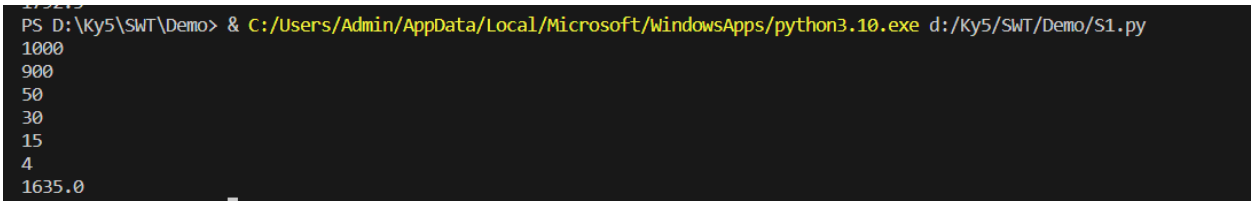
TC#2: baseprice =1000 , specialprice = 900 , extraprice = 50 , discount = 15 , addon_discount = 15 , extras = 0

=>1,2,3,4,5,6,7,8,10,12,13,14,15,16 =>14/16 => 87,5%



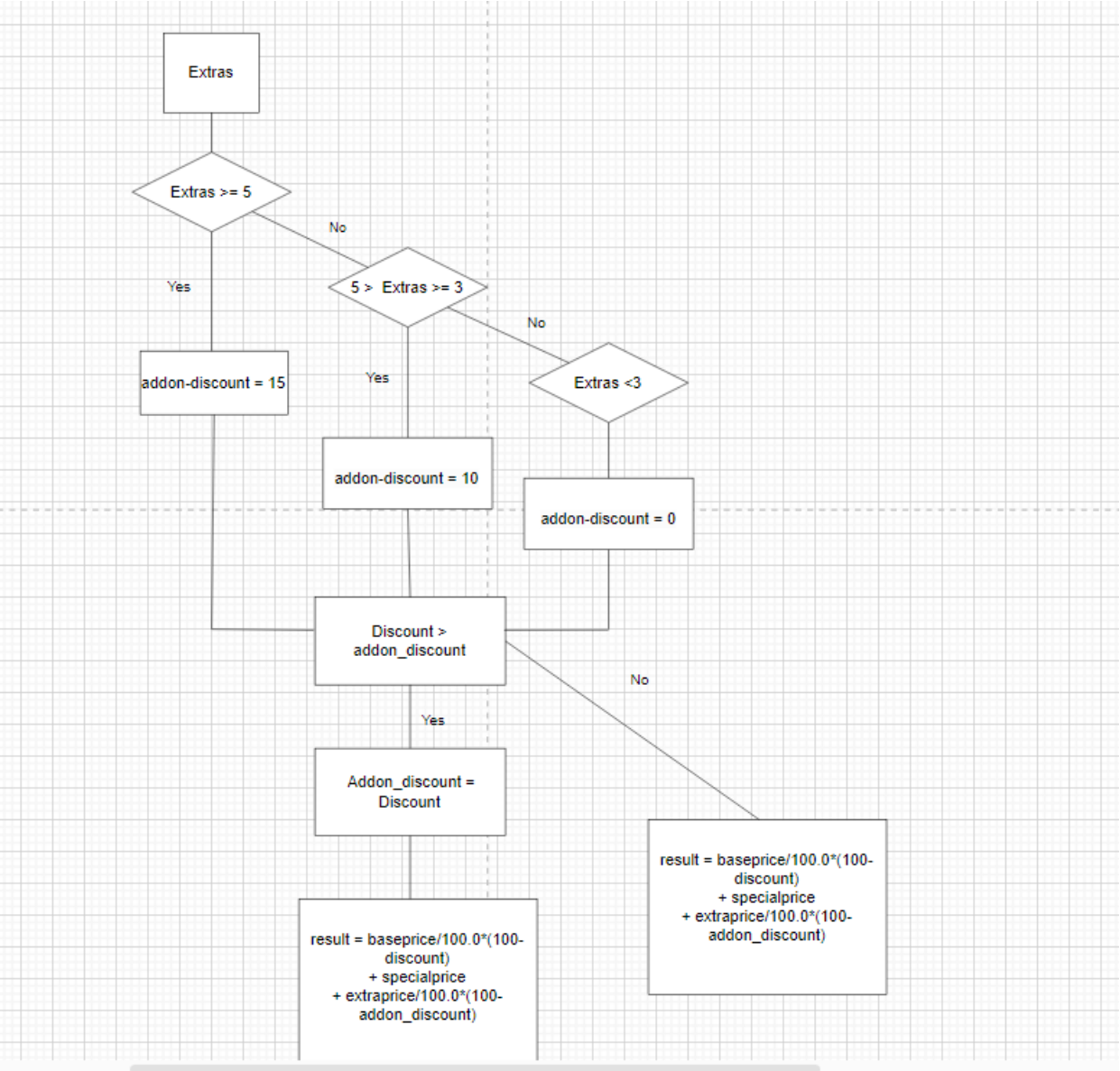
TC#3: baseprice =1000 , specialprice = 900 , extraprice = 50 , discount = 30 , addon_discount = 15 , extras = 4

=>1,2,3,4,5,6,7,8,9,13,14,15,16 =>13/16 =>81,25%



TC#1,2,3 16/16 = 100%

Decision coverage:


Extras
Extras >= 5
No
Yes
5 > Extras >= 3
No
addon-discount = 15
Yes
Extras <3
addon-discount = 10
addon-discount = 0
Discount > addon_discount
No
Yes
Addon_discount = Discount
result = baseprice/100.0*(100-discount) + specialprice + extraprice/100.0*(100-addon_discount)
result = baseprice/100.0*(100-discount) + specialprice + extraprice/100.0*(100-addon_discount)