Exercise - Testing

Part 1: Using a black box strategy, create a set of test cases for the following problems:

1) **The current high score for a videogame is 101500. Prompt the user to enter a score. If the new score beats the high score, change the high score AND output a congratulatory message. However, if the new score does not beat the current high score, ask the user to try again.**

Input (Score)	Conditions	Expected Output
Score = 101501	If score>101500 - - -T | | F	New High score!
Score=1000	else if score <101500 - - - T | | F	Try again
Score=-1	else	enter a valid score.

2) **Write a program for a pizzeria. This pizzeria creates only party size pizzas for $15 each with no toppings. Each topping costs $1.50 each for the first 3 toppings. Any toppings after three are $1.25 each. Write a program that will prompt the user for the number of pizza toppings and output the total cost of the pizza.**

Input (Toppings)	Conditions	Expected Output (Total)
Toppings=0	If toppings=0- - -T | | F	Total is $15
Toppings=2	else if toppings=<3 - - - T | | F	Total is $18
Toppings=5	Else if toppings>3- - - T | | F	Total is $21.25
Topping=-1	Else	Enter a valid amount of toppings.

3) **Ian works at Baskin-Robins. He gets a bonus if he sells more than 150 cones per week. For his bonus, he receives $10 plus 10 cents each in excess of 150 cones. If he sells more than 250 cones per week, he receives 25 cents each in excess of 250 cones plus the amount he earned for cones 150 to 249**. **Write a program that prompts for the number of cones sold per week and calculate and print his bonus**.

Input (Cones)	Conditions	Expected Output (Bonus)
Cones=260	If cones>=250 - - -T | | F	Bonus is $12.40
Cones=155	else if cones>=150- - - T	Bonus is $0.50

Cones=5	| | F Else If cones<150 - - -T | | F	Bonus is $0
Cones=-1	Else	Invalid number of cones sold.

4) Using Python, create a variable called length and width. Write a program that prompts the user for the length and width of a rectangle. If the length and width are positive, calculate and output the area. Otherwise, output an error message.

Input (Length & Width)	Conditions	Expected Output (Area)
Length=5 Width =10	If length>=0 && width >=0 - -T | | F	Area of the rectangle is 50
Length=-3 Width=-6	Else	Invalid integer, enter a positive integer for length and width

5) Write a program that calculates the income tax for a salary. This program will prompt for an annual salary. If the salary is less than $6000, no income tax is calculated. If the salary is between $6000 and less than $20000, calculate tax at 25%. If the salary is between $20000 and $50000, calculate tax at 30%. If the salary is greater than $50000 calculate the tax at 35%.

Input (Income)	Conditions	Expected Output (Tax)
Income=50500	If salary>= 50000- - -T | | F	Incomes tax is $17675
Income=15000	else if salary>=6000 && - - - T salary<=20000 | | F	Income tax Is $3750
Income=-5000	Else if salary<6000- - -T | | F	Income tax is $0
Income=-200	Else	Invalid income.

6) Write a program that simulates a cash register. The program will continually prompt for the price of an item until told to stop by the user. The program will calculate and output the subtotal, sales tax and total price.

Input (Price)	Conditions	Expected Output (Subtotal,

		sales tax & total price)
Price=5 Price= 10 Price=15 Price= -40	If price.equals(“Stop”)- - -T | | F Else if - - - T | | F Else	Subtotal is $30 Sales tax=$3.90 Total price=33.90 Enter price: Invalid price.

7) **Write a program that will prompt the user for eight marks out of 100. Determine and output the mean average of the eight marks along with the highest and lowest. Do not accept marks less than 0 or greater than 100.**

Input (Marks)	Conditions	Expected Output (Average)
Mark1=10 Mark2=20 Mark3=30 Mark4=40 Mark5=50 Mark6=60 mark7=70 Mark8=80	If mark>=0 &&- - -T Mark<=100 | | F Else	The average Is 45. Invalid mark, enter mark between 0 and 100.

Part 2: For the following segments of code, add “tags” to test for the values and the paths.

```
channel = int(raw_input(“Enter a channel”))
print channel
if (channel = = 3) or (channel = = 24):
        print “You can watch The Simpsons”
        print “Yay!”
print “the end”
```

```
num = 0
response = " "
while response != "EXIT":
   response = raw_input("Type EXIT to stop the loop"
    print response
```

```
   num = num+1
print num
```

```
num = 0
while num > 3:
    print num
   num = num+1
print num
```

```
```

```
mark=float(raw_input("Enter a mark"))
print mark
if mark >= 80:
        print "Honours"
        print "good work"
elif mark>= 50:    # that is condition 1 is False
        print "you pass"
        print "Congratulations"
else:    # that is condition 1 and 2 are False
        print "you fail"
        print "try again"
print "The End"
```

```
x=int(raw_input("Enter a value for x"))
print x
y=int(raw_input("Enter a value for y"))
print y
z=int(raw_input("Enter a value for z"))
print z
largest = z
if (x>=y):
        if (x>=z):
                largest = x
                print largest
else:
        if (y>=z):
                largest = y
                print largest
```