Recitation 02
Dealing with Data

Question 1 | Numeric values and operations

Reduce the following expressions to their corresponding numerical values, and specify their type.

5 * -6	5 * (-6) = -30	34 / 10	3.4
34 // 10	34/10=3.4 34//10 = 3	34 % 10	3*10+4 34%10=4
23 % 4.0	4*5+3 23%4=3 23%4.0=3.0	25 + 30 / 6	25+(30/6)=25+5.0=30.0 25+(30//6)=25+5=30 25+(33//6)=25+5=30 25+(33/6)=25+5.5=30.5
(1 + 3) * (6 / 2)	4 * 3.0 = 12.0	(1 + 3.0) * (6 // 2)	4.0 * 3 = 12.0
(21 % 12) % 7	21 = 12*1 + 9 21//12 = 1 21%12 = 9 9 = 7*1 + 2 2	100 - 25 * 3 % 4	100 - (25 * 3 % 4) 100 - ((25*3)%4) 100 - (75%4) #75=18*4+3 100 - 3 97
3 * (17 / 3) + 17 % 3	3 * (5.66…67)+17%3 17.0 + 17 % 3 17.0 + (17 % 3) 17.0 + 2 19.0	(21 % 7) % 12	21 % 7 = 0 0 % 12 = 0 12 % 0 -> ZeroDivisionError

Question 2 | Strings

Write out the output of each line in the space provided. If the line results in an error, write ”error”.

print(5 + “5”) print(“5”+”5”)	error 55	print(5 + int(“5”))	print(5+5) print(10) 10
print(str(5) + int("5"))	print(“5”+5) error	print(15 % 2) print(str(14%7))	print(1) 1 print(str(0)) print(“0”) 0
print("hey" + "yo")	print(“heyyo”) heyyo	print(4 * “Let it be”)	Let it beLet it beLet it beLet it be
print("yo" * 4.0) print(“yo”*int(4.0))	TypeError yoyoyoyo	print(“hi” + there) there = “there” print(“hi”+there)	error hithere

print("You talkin' to me? " * 3 + "Then who the hell else are you talking to?")
print("You talkin' to me? You talkin' to me? You talkin' to me? "+...) You talkin' to me? You talkin' to me? You talkin' to me? Then who the hell else are you talking to?
print("Let it be" * 2 + "Let it be " * 2)
print("Let it beLet it be"+"Let it be Let it be ") Let it beLet it beLet it be Let it be

Question 3 | Escape sequence

print("My name is \'Promethee\'")	My name is 'Promethee'
print("My name is "Promethee")	error (Syntax error) string is unterminated
print('My name is "Promethee') print('My name is \"Promethee')	My name is "Promethee My name is "Promethee
print("My name is \"Promethee\"")	My name is "Promethee"
print("My first name is\t\t\"Promethee\"\nMy last name is\t\t\"Spathis\"")	
My first name is "Promethee" My last name is "Spathis"	
print("My first name is\t\t\"Promethee\"\rMy last name is\t\t\"Spathis\"")	
My first name is "Promethee" My last name is "Spathis"	

Question 4 | Variable assignment

Consider the following variable assignments:

```
Left = "Lady"
Middle = "Jack"
Right = "Ace"
```

1) Figure out where the 'Lady' is (Left, Middle, Right) after running the following programs:

Left, Right, Middle = Left, Middle, Right

L = “Lady" M = “Jack” R = “Ace” L = “Lady" M = “Ace" R = “Jack"
Left, Right, Middle = Middle, Right, Left
L = “Lady" M = “Jack” R = “Ace” L = “Jack" M = “Lady" R = “Ace”
Left, Middle, Right = Middle, Right, Left
L = “Lady" M = “Jack” R = “Ace” L = “Jack” M = “Ace” R = “Lady”
Left, Middle, Right = Middle, Right, Left Left, Middle, Right = Middle, Right, Left
L = “Lady" M = “Jack” R = “Ace” L = “Jack" M = “Ace” R = “Lady” L = “Ace" M = “Lady" R = “Jack”
Left, Middle, Right = Middle, Right, Left Left, Middle, Right = Middle, Right, Left Left, Middle, Right = Middle, Right, Left
L = “Lady" M = “Jack” R = “Ace” L = “Jack" M = “Ace” R = “Lady" L = "Ace" M = "Lady" R = “Jack” L = “Lady" M = “Jack” R = “Ace"
Left, Middle, Right = Right, Right, Right Left, Middle, Right = Left, Left, Left Left, Middle, Right = Middle, Middle, Middle

L = “Lady"
M = “Jack”
R = “Ace”

L = “Ace“

M = “Ace”

R = “Ace”

L = “Ace”

M = “Ace”

R = “Ace”

L = “Ace”

M = “Ace”

R = “Ace”

Question 5 | Variable swap

Consider the following variable assignments:

```
a = 1
b = 2
c = a
```

1) Figure out the output of the following statements:

print(a, b, c)	1 2 1
a = b print(a, b, c)	2 2 1
b = c print(a, b, c)	1 1 1

Question 6 | Sales Prediction

A company has determined that its annual profit is typically 23 percent of total sales.

1) Write a program that asks the user to enter the projected amount of total sales, and then displays the profit that will be made from that amount.

```
ANNUAL_PROFIT_RATE = .23

total_sales = int(input(“What is the projected amount of total sales?> ”))

profit = ANNUAL_PROFIT_RATE*total_sales
print(“The expected profit for this year is:”, profit)
```

```
#print("The expected profit for this year is:", .23*total_sales)
#print("The expected profit for this year is:"+str(.23*total_sales))
#print("The expected profit for this year is:"+str(profit))
```

Question 7 | Ingredient Adjuster

A cookie recipe calls for the following ingredients:

- 1.5 cups of sugar
- 1 cup of butter
- 2.75 cups of flour

The recipe produces 48 cookies with this amount of the ingredients.

1) Write a program that asks the user how many cookies he or she wants to make, and then displays the number of cups of each ingredient needed for the specified number of cookies.

```
SUGAR = 1.5
BUTTER = 1
FLOUR = 2.75
COOKIES = 48
cookies = int(input("How many cookies? > "))
amount_sugar = SUGAR * cookies / COOKIES
amount_butter = BUTTER * cookies / COOKIES
amount_flour = FLOUR * cookies / COOKIES
print("The amount of sugar for", cookies, "cookies is:", amount_sugar)
print("The amount of butter for", cookies, "cookies is:", amount_butter)
print("The amount of flour for", cookies, "cookies is:", amount_flour)
```