### Exercise: Python Variables

1. Create a variable called break and assign it a value 5. See what happens and find out the reason behind the behavior that you see.

2. Create two variables. One to store your birth year and another one to store current year. Now calculate your age using these two variables

3. Store your first, middle and last name in three different variables and then print your full name using these variables

4. Answer which of these are invalid variable names:

\_nation

1record

record1

record\_one

record-one

record^one

continue

# Exercise Numbers

# 1. You have a football field that is 92 meter long and 48.8 meter wide. Find out total

# area using python and print it

length=92

width=48.8

area=length\*width

print("area of football field:",area) # Ans: 4489.599999999999

# 2. You bought 9 packets of potato chips from a store. Each packet costs 1.49 dollar

# and you gave shopkeeper 20 dollar.

# Find out using python, how many dollars is the shopkeeper going to give you back?

num\_packets=9

cost\_per\_packet=1.49

total\_cost=num\_packets\*cost\_per\_packet

money\_paid=20

cash\_back=money\_paid-total\_cost

print("Cash back:",cash\_back) # Ans: 6.59

# 3. You want to replace tiles in your bathroom which is exactly square and 5.5 feet

# is its length. If tiles cost 500 rs per square feet, how much will be the total

# cost to replace all tiles. Calculate and print the cost using python

# Hint: Use power operator (\*\*) to find area of a square

length=5.5

area=length\*\*2 # area of square is length power 2

cost=area\*500

print("total cost for bathroom tiles replacement:",cost) # Ans: 15125.0

# 4. Print binary representation of number 17

num=17

print('Binary of number 17 is:',format(num,'b')) # Ans: 10001

## Exercise: String in Python

1. Create 3 variables to store street, city and country, now create address variable to

store entire address. Use two ways of creating this variable, one using + operator and the other using f-string.

Now Print the address in such a way that the street, city and country prints in a separate line

2. Create a variable to store the string "Earth revolves around the sun"

1. Print "revolves" using slice operator

2. Print "sun" using negative index

3. Create two variables to store how many fruits and vegetables you eat in a day.

Now Print "I eat x veggies and y fruits daily" where x and y presents vegetables and fruits that you eat everyday. Use python f string for this.

4. I have a string variable called s='maine 200 banana khaye'. This of course is a

wrong statement, the correct statement is 'maine 10 samosa khaye'.

Replace incorrect words in original strong with new ones and print the new string.

Also try to do this in one line.

# 1. Let us say your expense for every month are listed below,

# 1. January - 2200

# 2. February - 2350

# 3. March - 2600

# 4. April - 2130

# 5. May - 2190

#

# Create a list to store these monthly expenses and using that find out,

#

# 1. In Feb, how many dollars you spent extra compare to January?

# 2. Find out your total expense in first quarter (first three months) of the year.

# 3. Find out if you spent exactly 2000 dollars in any month

# 4. June month just finished and your expense is 1980 dollar. Add this item to our monthly expense list

# 5. You returned an item that you bought in a month of April and

# got a refund of 200$. Make a correction to your monthly expense list

# based on this

exp = [2200,2350,2600,2130,2190]

# 1. In Feb, how many dollars you spent extra compare to January?

print("In feb this much extra was spent compared to jan:",exp[1]-exp[0]) # 150

# 2. Find out your total expense in first quarter (first three months) of the year

print("Expense for first quarter:",exp[0]+exp[1]+exp[2]) # 7150

# 3. Find out if you spent exactly 2000 dollars in any month

print("Did I spent 2000$ in any month? ", 2000 in exp) # False

# 4. June month just finished and your expense is 1980 dollar. Add this item to our monthly expense list

exp.append(1980)

print("Expenses at the end of June:",exp) # [2200, 2350, 2600, 2130, 2190, 1980]

# 5. You returned an item that you bought in a month of April and

# got a refund of 200$. Make a correction to your monthly expense list

# based on this

exp[3] = exp[3] - 200

print("Expenses after 200$ return in April:",exp) # [2200, 2350, 2600, 1930, 2190, 1980]

# 2. You have a list of your favourite marvel super heros

# heros=['spider man','thor','hulk','iron man','captain america']

# Using this list

heros=['spider man','thor','hulk','iron man','captain america']

# 1. Length of the list

print(len(heros))

# 2. Add 'black panther' at the end of this list

heros.append('black panther')

print(heros)

# 3. You realize that you need to add 'black panther' after 'hulk',

# so remove it from the list first and then add it after 'hulk'

heros.remove('black panther')

heros.insert(3,'black panther')

print(heros)

# 4. Now you don't like thor and hulk because they get angry easily :)

# So you want to remove thor and hulk from list and replace them with doctor strange (because he is cool).

# Do that with one line of code.

heros[1:3]=['doctor strange']

print(heros)

# 5. Sort the list in alphabetical order

heros.sort()

print(heros)

## Exercise: Python If Condition

1. Using following list of cities per country,

```

india = ["mumbai", "banglore", "chennai", "delhi"]

pakistan = ["lahore","karachi","islamabad"]

bangladesh = ["dhaka", "khulna", "rangpur"]

```

1. Write a program that asks user to enter a city name and it should tell which country the city belongs to

2. Write a program that asks user to enter two cities and it tells you if they both are in same country or not. For example if I enter mumbai and chennai, it will print "Both cities are in India" but if I enter mumbai and dhaka it should print "They don't belong to same country"

2. Write a python program that can tell you if your sugar is normal or not. Normal fasting level sugar range is 80 to 100.

1. Ask user to enter his fasting sugar level

2. If it is below 80 to 100 range then print that sugar is low

3. If it is above 100 then print that it is high otherwise print that it is normal

## Exercise: Python for loop

1. After flipping a coin 10 times you got this result,

```

result = ["heads","tails","tails","heads","tails","heads","heads","tails","tails","tails"]

```

Using for loop figure out how many times you got heads

2. Print square of all numbers between 1 to 10 except even numbers

3. Your monthly expense list (from Jan to May) looks like this,

```

expense\_list = [2340, 2500, 2100, 3100, 2980]

```

Write a program that asks you to enter an expense amount and program

should tell you in which month that expense occurred. If expense is not

found then it should print that as well.

4. Lets say you are running a 5 km race. Write a program that,

1. Upon completing each 1 km asks you "are you tired?"

2. If you reply "yes" then it should break and print "you didn't finish the race"

3. If you reply "no" then it should continue and ask "are you tired" on every km

4. If you finish all 5 km then it should print congratulations message

5. Write a program that prints following shape

```

\*

\*\*

\*\*\*

\*\*\*\*

\*\*\*\*\*

```

# Exercise: Functions in python

1. Write a function called calculate\_area that takes base and height as an input and returns and area of a triangle. Equation of an area of a triangle is,

```

area = (1/2)\*base\*height

```

2. Modify above function to take third parameter shape type. It can be either "triangle" or "rectangle". Based on shape type it will calculate area. Equation of rectangle's area is,

```

rectangle area=length\*width

```

If no shape is supplied then it should take triangle as a default shape

3. Write a function called print\_pattern that takes integer number as an argument and prints following pattern if input number is 3,

```

\*

\*\*

\*\*\*

```

if input is 4 then it should print

```

\*

\*\*

\*\*\*

\*\*\*\*

```

Basically number of lines it prints is equal to that number. (Hint: you need to use two for loops)