Homework 1 about Conditionals: Write a program that receives an integer from the user and prints Large if that number is greater than or equal to 100, prints average if that number is between 20 and 100, and prints Small if that number is less than or equal to 20. You can get an input from user and convert it to an integer using a = int(input('Please enter an integer:')).

Homework 2 about Conditionals: Write a program that receives an integer from the user and prints Positive Even, Positive Odd, Negative Even, or Negative Odd, depending on the number. You can get an input from user and convert it to an integer using a = int(input('Please enter an integer:')).

Homework 3 about Loops: Write a for loop that iterates through numbers from 1 to 10 using the range function, adds them up together, and prints the total. The printed output should be 55.

Homework 4 about Loops: Write a program that receives an integer input from the user and call it n. Use a for loop, an if condition, and a continue keyword, to find the summation of all numbers that are not a multiple of 3, from 1 to n, including 1 and n and print the result. For instance, the output of your program for 9, should be 27 and for 17 should be 108. You can get an input from user and convert it to an integer using a = int(input('Please enter an integer:')).

Homework 5 about Functions: Write a function that receives two numbers as parameters and returns their multiplcation. Call that function and print its output. For instance, if the arguments are 3 and 5, the output should be 15.

Homework 6 about Functions: Write a function that receives three parameters: name, weight, and height. The default value for name is James. The function calculates the BMI and returns it. BMI is: weight/(height^2). Weight should be in kg and height should be in meters. For instance, if the weight is 60 kg and the height is 1.7 m, then the BMI should be 20.76. The function should print the name and BMI. The function should return 'BMI is greater than 22' if the MBI is greater than or equal to 22. Otherwise, the function should return 'BMI is less than 22'. Call the function and print its output.

Homework 7 about Integers and Floats: Write a program that receives an integer, greater than or equal to 2, from the user and prints whether that number is odd or even.

Homework 8 about Integers and Floats: Write a program that receives an integer from the user, called n, and prints the first n prime numbers. For example, if the input is 7, the output should be: 2, 3, 5, 7, 11, 13, 17.

Homework 9 about Strings: Write a Python function to get a string made of the first 2 and the last 2 chars from a given string. If the string length is less than 2, return instead an empty string. For instance, it should return unrn for unicorn. Call that function and print its output.

Homework 10 about strings: Write a python program to get a string as input from the user and print the third character from the end. For instance, it should return o for unicorn.

Homework 11 about Lists, Tuples, and Sets: Write a function that receives a tuple as input. The tuple might include duplicates. Convert the tuple to a set which will remove duplicates automatically. Then convert the set to a list. Then sort the list. Then create a new list that includes the items in the previous list, each one duplicated as many times as its index. For instance, the first item in the list would appear only once in the new list, the second item in the list would appear two times in the list, etc. Then it prints the new list and returns the new list. For instance, if the input is ('b', 'a', 'c', 'a', 'c'), the output should be ['a', 'b', 'b', 'c', 'c', 'c']. If the input is (8, 5, 6, 6), the output should be [5, 6, 6, 8, 8, 8].

Homework 12 about Lists, Tuples, and Sets: Write a function that receives a list of integers as its argument. The function should join individual elements of this list of integers to create a string. Inside the string, the elements should be separated using a comma. Then print the string. For instance, if you call the function and pass [1, 2, 3], the returned string should be "1,2,3". Please note that there is no space around the comma in the string. Please note that the join function only operates on lists whose elements are string. Since your list includes integers in this case, you need to take an extra step to make it possible to use the join function.

Homework 13 about Lists, Tuples, and Sets: Write a function that receives a list of integers and prints out that list after removing prime numbers from the list. Test your program with multiple lists of numbers and make sure it works properly. For instance, if the input is [1, 2, 3, 4, 5, 6, 7], it should print [1, 4, 6] or [4, 6]. However you decide to treat 1 is okay.

Homework 14 about Dictionaries: Define list\_1 = ['Ten', 'Twenty', 'Thirty'] and list\_2 = [10, 20, 30], then write a program that uses a for loop to create a dictionary called dict whose keys are items from list\_1 and whose values are items from list\_2 and then prints the dict. Do not manually type the keys and values in the dict. In other words, if I change the two lists, your code should still work properly with no errors.

Homework 15 about Dictionaries: Write a program that defines dict={'name': 'John', 'expertise': 'Math'}, then asks for an input from the user and prints True if the user input exists among the values of the dictionary and False if it does not. Do not manually type the keys and values to check the condition. In other words, if I change dict, your code should still work properly with no errors.

Homework 16 about Dictionaries: Write a function that receives a dictionary as input and prints out the key for the minimum value among the dictionary values. Call that function and print its output. You can test your function with {'Math': 25, 'History': 20, 'Physics': 18, 'Geography': 19} and it should print out Physics.

Homework 17 about Libraries: NumPy stands for Numerical Python. This Python library provides support for large multidimensional array objects and various tools to work with them. The difference between Python lists and NumPy arrays: Lists contain elements with different data types, but NumPy arrays contain only homogeneous elements, i.e. elements having the same data type. This makes it more efficient at storing and manipulating the array. This difference becomes apparent when the array has a large number of elements, say thousands or millions. Also, with NumPy arrays, you can perform element-wise operations, something which is not possible using Python lists! This is the reason why NumPy arrays are preferred over Python lists when performing mathematical operations on a large amount of data. Write a program to delete the second column from the following array and insert the following new column in its place, and print the result.

original\_array = numpy.array(

[[34 43 73]

[82 22 12]

[53 94 66]])

new\_column = numpy.array([[10,10,10]])

After insertion, your array should look like:

[[34 10 73]

[82 10 12]

[53 10 66]]

Homework 18 about Libraries: Pandas is a Python library for data manipulation and analysis. Download this CSV file and take a look at it. Use pandas library to read this file as a data frame. Write a program to find the name of the company that has the most expensive car. Print out the name of this company. The correct output is mercedes-benz.

Homework 19 about read write txt files: Prepare a txt file that has five lines with three words on each line, separated with a space. Write a program that reads the txt file and makes three lists out of it and prints the three lists. The elements of the first list are the first word on each line. The elements of the second list are the second word on each line. The elements of the third list are the third word on each line. Each list has five elements. Make sure that there are no new line characters in the elements.

Homework 20 about read write txt files: Make a txt file and write 10 lines of text in it, anything. Read the file in Python and write a new txt file using your code that includes every other line in the first text file. Therefore, the new txt file has five lines which are line 1, line 3, line 5, line 7, and line 9 in the first txt file.

Homework 21 about Problem Solving: The Fibonacci Sequence is a series of numbers. The first two numbers are 0 and 1. The next number is found by adding up the two numbers before it. For example, 0, 1, 1, 2, 3, 5, 8, 13, 21. The next number in this series is 13+21 = 34. Write a program that receives an integer from the user, called n, and prints out Fibonacci series up to n terms. For example, if the user types 5, your program should print out 0, 1, 1, 2, 3. If the user types 11, your program should print out 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55.

Homework 22 about Problem Solving:

Introduction: A magic square is a 2D matrix composed of n^2 integers where n is the length of one row or column. In a magic square each row, each column, and the two diagonals must sum to the same value.

Problem: Given a 2D matrix, your program must determine if the square is magic or not magic. It will print "magic" or "non magic" accordingly.

Input: Your program will first take an input n, representing the length of one row of the matrix from the user. It will then take n lines of input containing n integers separated by spaces from the user.

Sample Input:

3

2 2 2

2 2 2

2 2 2

Output: "magic"

Input:

3

2 7 6

9 5 1

4 3 8

Output: "magic"

Input:

4

16 2 3 13

5 11 10 8

9 7 6 12

4 14 15 1

Output: "magic"

Input:

4

12 3 4 5

5 67 8 9

102 3 4 6

34 2 89 0

Output: "not magic