CA 615 – Embedded Programming with Raspberry Pi

Python Assignment

Topics covered: Variables, Conditional statement, Looping Structure, Lists, Tuples, Dictionaries, Functions, File management.

1. Write a program to get user from input and calculate area of circle.
2. Write a program to calculate area of triangle.
3. Write a program to calculate simple interest.
4. Write a Python program to print the following string in a specific format:

Twinkle, twinkle, little star,

How I wonder what you are!

Up above the world so high,

Like a diamond in the sky.

Twinkle, twinkle, little star,

How I wonder what you are

1. Write a Python program that accepts an integer (n) and computes the value of n+nn+nnn.
2. Write a Python program to convert all units of time into seconds
3. Write a Python program to compute the greatest common divisor (GCD) of two positive integers.
4. Write a Python program to display your details like name, age, address in three different lines.
5. Write a Python program to calculate number of days between two dates.

Sample dates: (2014, 7, 2), (2014, 7, 11)

Expected output: 9 days

1. Write a Python program to solve (x + y) \* (x + y). Go to the editor

Test Data : x = 4, y = 3

Expected Output : (4 + 3) ^ 2) = 49

1. Write a Python program to get the difference between a given number and 17, if the number is greater than 17 return double the absolute difference.
2. Write a Python program to sum of three given integers. However, if two values are equal sum will be zero.
3. Write a Python program to check if multiple variables have the same value.
4. Write a Python function to check whether a number is divisible by another number. Accept two integers values form the user.
5. Write a Python program that will return true if the two given integer values are equal or their sum or difference is 5.
6. Write a program to check if the given number is odd or even.
7. Write a Python program to check if the given year is a leap year or not.
8. Write a Python program where user enters the month and program returns number of days.
9. Modify program 9 so that user also inputs year and give your output after considering leap year.
10. Write a Python program to test whether a number is within 100 or 1000 or 2000.
11. Write a Python program to calculate the sum of three given numbers, if the values are equal then return three times of their sum.
12. Write a python program to sum of the first n positive integers.
13. Write a program to check if the given number is within a user specified range.
14. Write a program to divide two values and return a result with floating point.
15. Write a program to convert minutes into seconds.
16. Write a program to convert hours into seconds.
17. Write a program to divide two numbers and return a reminder.
18. Write a program to find area of triangle.
19. Ask user for any number and print next and previous number based on number given by user.
20. Write a Python program to compute the digit distance between two integers. Go to the editor

The digit distance between two numbers is the absolute value of the difference of those numbers.

For example, the distance between 3 and -3 on the number line given by the |3-(-3)| = 6 units

Digit distance of 123 and 256 is

Since |1 - 2| + |2 - 5| + |3 - 6| = 1 + 3 + 3 = 7

1. Write a Python program to get a new string from a given string where "Is" has been added to the front. If the given string already begins with "Is" then return, the string unchanged.
2. Write a Python program to test whether a passed letter is a vowel or not.
3. Write a Python program to calculate the sum of the digits in an integer.
4. Write a Python program to check whether a specified value is contained in a group of values.

Test Data :

3 -> [1, 5, 8, 3] : True

-1 -> [1, 5, 8, 3] : False

1. Write a Python program to concatenate all elements in a list into a string and return it.
2. Write a Python program to filter the positive numbers from a list.
3. Write a Python program to compute the product of a list of integers.
4. Write a program that asks the user how many Fibonnaci numbers to generate and then generates them.
5. Write a program to check if the string is palindrome.
6. Write a program to reverse a string.
7. Write a program to check if the given number is prime number.
8. Write a Python program to print all even numbers from a given numbers list in the same order and stop the printing if any numbers that come after the user defined number stop printing.

numbers = [ 386, 462, 47, 418, 907, 344, 236, 375, 823, 566, 597, 978, 328, 615, 953, 345,

399, 162, 758, 219, 918, 237, 412, 566, 826, 248, 866, 950, 626, 949, 687, 217,

815, 67, 104, 58, 512, 24, 892, 894, 767, 553, 81, 379, 843, 831, 445, 742, 717,

958,743, 527 ]

1. Write a Python program to print out a set containing all the colors from color\_list\_1 which are not present in color\_list\_2.
2. Write a program to return last element in the list.
3. Arrange number from a list in ascending order.
4. Write a program to find the minimum and maximum number from the list.
5. Write a Python program to extract single key-value pair of a dictionary in variables.
6. Write a python program to convert decimal to hexadecimal.
7. Write a Python program to check if variable is of integer or string.
8. Write a Python function to find the maximum and minimum numbers from a sequence of numbers.
9. Write a Python function to check if the given number is repeating in a list.
10. Write a Python function to reverse a string.
11. Write a Python function to calculate the factorial of a number (a non-negative integer). The function accepts the number as an argument.
12. Write a Python function to check whether a number is in a given range.
13. Write a Python function that takes a list and returns a new list with unique elements of the first list.
14. Write a Python function that takes a number as a parameter and check the number is prime or not.
15. Write a Python function that takes a positive integer and returns the sum of the cube of all the positive integers smaller than the specified number.
16. Write a Python function to find a distinct pair of numbers whose product is odd from a sequence of integer values.
17. Write a Python program to remove and print every third number from a list of numbers until the list becomes empty.
18. Write a program to enter two numbers. Check if num1^num1 = num2.
19. Write a Python program to count the number of strings where the string length is 2 or more and the first and last character are same from a given list of strings. Sample List : ['abc', 'xyz', 'aba', '1221']

Expected Result: 2

1. Write a Python program to get a list, sorted in increasing order by the last element in each tuple from a given list of non-empty tuples. Sample List : [(2, 5), (1, 2), (4, 4), (2, 3), (2, 1)]

Expected Result: [(2, 1), (1, 2), (2, 3), (4, 4), (2, 5)]

1. Write a Python function that takes two lists and returns true if they have at least one common member.
2. Write a Python program to print the numbers of a specified list after removing even numbers from it.
3. Write a Python program to generate all permutations of a list in Python.
4. Write a Python program to multiply all the items in a dictionary.
5. Write a Python program to remove duplicates from Dictionary.
6. Write a Python program to create a dictionary from a string.

Sample string: 'cmpica'

Expected output: {'c': 2, 'm': 1, 'p': 1, 'i': 1, 'a': 1}

1. Write a Python program to create a list by concatenating a given list which range goes from 1 to n.

Sample list: ['p', 'q']

n =5

Sample Output : ['p1', 'q1', 'p2', 'q2', 'p3', 'q3', 'p4', 'q4', 'p5', 'q5']

1. Write a Python program to print all unique values in a dictionary.

Sample Data: [{"V":"S001"}, {"V": "S002"}, {"VI": "S001"}, {"VI": "S005"}, {"VII":"S005"}, {"V":"S009"}, {"VIII":"S007"}]

Expected Output: Unique Values: {'S005', 'S002', 'S007', 'S001', 'S009'}

1. Write a Python program to combine two dictionary-adding values for common keys.

d1 = {'a': 100, 'b': 200, 'c':300}

d2 = {'a': 300, 'b': 200,’d’:400}

Sample output: Counter ({'a': 400, 'b': 400,’d’: 400, 'c': 300})

1. Write a Python program to reverse a tuple.
2. Write a Python program to replace last value of tuples in a list.

Sample list: [(10, 20, 40), (40, 50, 60), (70, 80, 90)]

Expected Output: [(10, 20, 100), (40, 50, 100), (70, 80, 100)]

1. Write a Python program to count the elements in a list until an element is a tuple.
2. Write a Python program to slice a tuple.
3. Write a Python program to read an entire text file.
4. Write a Python program to read first n lines of a file.
5. Write a Python program to append text to a file and display the text.
6. Write a Python program to read last n lines of a file.
7. Write a Python program to read a file line by line and store it into a list.
8. Write a Python program to count the number of lines in a text file.
9. Write a Python program to count the frequency of words in a file.
10. Write a Python program to write a list to a file.
11. Write a Python program to combine each line from first file with the corresponding line in second file.
12. Write a Python program to read a random line from a file.