

***Problem Set 2 – Level 1 -- Intermediate***

11. Write a program which accepts a sequence of comma separated 4 digit binary numbers as its input and then check whether they are divisible by 5 or not. The numbers that are divisible by 5 are to be printed in a comma separated sequence. Example: 0100,0011,1010,1001 Then the output should be: 1010 Notes: Assume the data is input by console.

*Hints: In case of input data being supplied to the question, it should be assumed to be a console input.*

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12. Write a program, which will find all such numbers between 1000 and 3000 (both included) such that each digit of the number is an even number. The numbers obtained should be printed in a comma-separated sequence on a single line.

*Hints: In case of input data being supplied to the question, it should be assumed to be a console input.*

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13. Write a program that accepts a sentence and calculate the number of letters and digits. Suppose the following input is supplied to the program:

hello world! 123

Then, the output should be:

LETTERS 10

DIGITS 3

*Hints: In case of input data being supplied to the question, it should be assumed to be a console input.*

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14. Write a program that accepts a sentence and calculate the number of upper case letters and lower case letters. Suppose the following input is supplied to the program:

Hello world!

Then, the output should be:

UPPER CASE 1

LOWER CASE 9

*Hints: In case of input data being supplied to the question, it should be assumed to be a console input.*

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15. Write a program that computes the value of  $a+aa+aaa+aaaa$  with a given digit as the **value of a**.

Suppose the following input is supplied to the program: 9

Then, the output should be:

11106

*Hints: In case of input data being supplied to the question, it should be assumed to be a console input.*

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16. You are required to write a program to sort the (name, age, height) tuples by ascending order where name is string, age and height are numbers.

The tuples are input by console.

The sort criteria are:

1. Sort based on name;
2. Then sort based on age;
3. Then sort by score. The priority is that name > age > score.

If the following tuples are given as input to the program:

- Tom,19,80
- John,20,90
- Jony,17,91
- Jony,17,93
- Json,21,85

Then, the **output of the program** should be:

*[('John', '20', '90'), ('Jony', '17', '91'), ('Jony', '17', '93'), ('Json', '21', '85'), ('Tom', '19', '80')]*

*Hints: In case of input data being supplied to the question, it should be assumed to be a console input. We use itemgetter to enable multiple sort keys.*

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17. Write a program that computes the net amount of a bank account based a transaction log from console input.

The transaction log format is shown as following:

D 100 W 200 ;

D means deposit while W means withdrawal.

Suppose the following **input** is supplied to the program: D 300 D 300 W 200 D 100

Then, the **output** should be: 500

*Hints: In case of input data being supplied to the question, it should be assumed to be a console input.*

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18. A robot moves in a plane starting from the original point (0,0). The robot can move toward UP, DOWN, LEFT and RIGHT with a given steps.

The trace of robot movement is shown as the following: **UP 5 DOWN 3 LEFT 3 RIGHT 2**

The numbers after the direction are steps. *Please write a program to compute the distance from current position after a sequence of movement and original point.* If the distance is a float, then just print the nearest integer.

Example:

*If the following tuples are given as input to the program: UP 5 DOWN 3 LEFT 3 RIGHT 2*

Then, the output of the program should be: 2 Hints: In case of input data being supplied to the question, it should be assumed to be a console input

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19. Write a program to compute the frequency of the words from the input. The output should output after sorting the key alphanumerically.

Suppose the following input is supplied to the program: New to Python or choosing between Python 2 and Python 3? Read Python 2 or Python 3. Then, the output should be: 2:2 3.:1 3?:1 New:1 Python:5 Read:1 and:1 between:1 choosing:1 or:2 to:1

***Hints: In case of input data being supplied to the question, it should be assumed to be a console input.***

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20. Write a method which can calculate square value of number

***Hints: Using the \*\* operator***