

# Programming Fundamentals LAB – BSDSF23

(Both Morning and Afternoon)

## Lab 14 – 19-12-2023

Note: YOU may USE Command Prompt or **Mu Editor** to interpret and execute all the PYTHON programs. Use of any IDE, except **Mu Editor** is not allowed for this LAB, despite you are expert. Unless and until you convinced me of it personally.

Also note, if the computer systems are not equipped with python interpreter, you may use online compiler at the following URL highlighted in yellow. And in case it is also difficult to use for any reason, you need to do the paperwork within the LAB time for all tasks, as discussed in the class sessions. Thanks

<https://www.programiz.com/python-programming/online-compiler/>

### Tasks 1 (30)

Create a BMP file in paintbrush of any width and height, and note the both on paper.

Open file in rb+ mode, seek and read width as 4 bytes of image stored in header of BMP, later do the same with height. Convert bytes to integer using `int.from_bytes` function and display the width and height of image on screen. Compare it with written on paper.

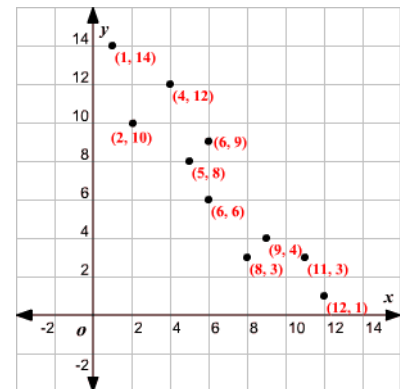
Now seek again the height of BMP and update it with half of the original height. Lastly close the file, and view the BMP in paintbrush again.

### Tasks 2 (20)

Using any of the text editors type the following data in the file. They are X, Y coordinates of some points. Read the file into array of Points or two arrays of ints for X and Y. Later obtain the slope  $m$  and y-intercept  $c$  for best fit line through these points using following formula. Type more data by yourself.

```
1 14
6 6
9 4
```

Note: Minimum task is to read the data in arrays of points or ints and display the arrays.



### Tasks 3 (50)

Write a menu based to save new, list all, search and display by code, delete by code, update title by code, update credit hours by code, for a fixed length course file of structure as follows.

One record per line with code as string of length 7, title as string of length 30 and credit hours as float of length 6 with 2 decimal places.

## Thanks, for your patience

If you got time, solve some pending tasks from previous labs