

Programming Fundamentals LAB – BSDSF24

(Both Morning and Afternoon)

Lab 03 – 04-10-2024

Task 01 (2 marks for each)

this task is repeated here for the practice, repeating something again and again is practice and practice make a man perfect

1. Turn on a LAB computer or your LAPTOP and Login into it.
2. Enter Command Line Interface (CLI), the BLACK windows and observe the prompt and a blinking cursor
3. Type D: and press enter, and observe/note WHAT appears on screen, WHERE on the screen. What is command prompt and where it is now, it should be **D:\>**
4. Type md pflab03 and press enter, and observe/note WHAT appears on screen, WHERE on the screen. Observe the command prompt
5. Type cd pflab03 and press enter, and observe/note WHAT appears on screen, WHERE on the screen. Observe the command prompt it should be **D:\pflab03>**
6. Type cl or CL and press enter, and observe/note WHAT appears on screen, WHERE on the screen. If cl is not recognized, it mean the computer is not configured properly
7. In **search** type **Developer Command Prompt** and observe/note WHAT appears on screen
8. Repeat sub tasks 4 and 6 to get command prompt as D:\pflab03>
9. In the command prompt window, type start notepad++ function.cpp and press enter to start notepad++ application creating a new file average.cpp, if app ask you for creation of a new file, respond yes
10. Copy the code in the provided source code files and save the file. Compile, Run and Test the program. Leave the command window open.

use notepad++ and developer command prompt for the following task

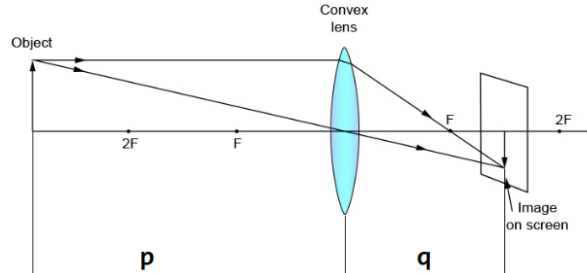
Task 02 (10 marks each)

1. Edit, compile and test the program provided in file distance.cpp. You need to complete only the function; rest of the program is provided error free. Prepare some test cases as follows and confirm the program is generating correct output for the provided inputs.

Sr #	vi (m/s)	a (m/s ²)	t (s)	s (m)	Sr #	vi (m/s)	a (m/s ²)	t (s)	s (m)
1	5	2	10		3				
2	0.25	20	280		4				

- Code a function to compute and return the focal length f of a convex lens using the object and image distances p and q respectively as shown in figure. Later create/edit, compile and test the program using above mentioned function.

$$\frac{1}{f} = \frac{1}{p} + \frac{1}{q}$$



- Code a function to compute and return the sum a range of natural numbers, for example 3 to 7 or 39 to 96, etc. As we know the sum of first N natural numbers is half of $N(N+1)$, we need to use it as follows. Later create/edit, compile and test the program using above mentioned function.

$$\sum_{k=s}^e k = \sum_{k=1}^e k - \sum_{k=1}^s k$$

- Code a function that takes a parameter marks as int and return the letter grade as a char corresponding to the parameter marks. If marks are 80 or above, letter grade is A, otherwise if marks are 50 or above letter grade is B, and if marks are below 50 the letter grade is F. Use only if (not if else or something different) to decide about the letter grade. Later create/edit, compile and test the program using above mentioned function.

Task 03 (20 marks each)

- Write a program (without functions) that take short name as input and store it in a variable of type string and letter generates the output as Welcome _____ where underline is replaced with the name entered. Compile and test it several times with different short names. Please note that short name consists of one word only, e.g., Idrees, Tipu, Maryam, etc
- Using while loop, write a program to display first 16 numbers one per line of the following infinite sequence. 1, 2, 4, 8, 16, 32, 64, . . . Later test the program that display first 100 numbers of the same sequence, observe the output and don't worry about the wrong number generated this time.

-- End of Lab --