Government College University, Lahore

Department of Computer Science

Programming Fundamentals (Spring 2019)

Lab – 01

Week (18-02-2019 – 22-02-2019)

Submission Deadline 27-02-2019 (Wednesday) 11:00 PM

This lab is designed to familiar students with the programing language. Students will be able to understand the use of different data types with variables. Students will also understand how to write code for a given algorithm. Finally student will understand problem analysis and write code of proposed solution. So try to solve task in given sequence.

Startup

Type the following program in your editor

```
1	#include <iostream>
2
3	using namespace std;
4
5	main()
6	{
7		cout << "Programming is ";
8		cout << "great fun!";
9	}
```

- Compile the code and observe the program output.
- Try to remove semicolon from end of statements and then compile your code and observe the output.
- Try to put semicolon at the end of preprocessor directive and observe the output.
- Remove line # 3 and observe the output of program.
- Change the case of main and cout and observe the output.

Task-01

Write a program that has following character variables: `first`, `middle`, and `last`. Store your initials and then display them on your screen.

- Try to store initials with single quotes and observe the output
- Try to store initials with double quotes and observe the output

Task-02

Write a program that defines an integer variable named `age` and a float variable named `weight`. Store your `age` and `weight` in the variables. The program should display these values on the screen in a manner similar to the following:

Program Output

My age is 20 and my weight is 180 pounds.

(Feel free to lie to the computer about your age and your weight it'll never know!)

Algorithm Workbench

Task-03

Convert the following pseudocode to C++ code. Be sure to define the appropriate variables

Store 20 in the *speed* variable.
Store 10 in the *time* variable.
Multiply *speed* by time and store the result in the *distance* variable.
Display the contents of the *distance* variable.

Task-04

Convert the following pseudocode to C++ code. Be sure to define the appropriate variables

Store 172.5 in the force variable.
Store 27.5 in the area variable.
Divide area by force and store the result in the pressure variable.
Display the contents of the pressure variable

Programming Challenges

Task-05 (Sales Prediction)

The South Punjab sales division of a company generates 62 percent of total sales. Based on that percentage, write a program that will predict how much the South Punjab division will generate if the company has Rs. 680 million in sales this year.

Task-06 (Restaurant Bill)

Write a program that computes the tax and tip on a restaurant bill for a patron with a Rs. 4450 meal charge. The tax should be 6.75 percent of the meal cost. The tip should be 15 percent of the total after adding the tax. Display the meal cost, tax amount, tip amount, and total bill on the screen.

Task-07 (Annual Pay)

Suppose an employee gets paid every two weeks and earns Rs. 5700.00 each pay period. In a year the employee gets paid 26 times. Write a program that defines the following variables:

payAmount This variable will hold the amount of pay the employee earns each pay period. Initialize the variable with 5700.00.
payPeriods This variable will hold the number of pay periods in a year. Initialize the variable with 26.
annualPay This variable will hold the employee s total annual pay, which will be calculated.

The program should calculate the employee s total annual pay by multiplying the employee's pay amount by the number of pay periods in a year, and store the result in the annualPay variable. Display the total annual pay on the screen.

Task-08 (Ocean Level)

Assuming the ocean's level is currently rising at about 1.5 millimeters per year, write a program that displays:

- The number of millimeters higher than the current level that the ocean's level will be in 5 years
- The number of millimeters higher than the current level that the ocean's level will be in 7 years
- The number of millimeters higher than the current level that the ocean's level will be in 10 years

Task-09 (Land Calculation)

One acre of land is equivalent to 43,560 square feet. Write a program that calculates the number of acres in the tract of land with 389,767 square feet.

Task-10 (Stock Commission)

Kathryn bought 600 shares of stock at a price of Rs. 21.77 per share. She must pay her stock broker a 2 percent commission for the transaction. Write a program that calculates and displays the following:

- The amount paid for the stock alone (without the commission)
- The amount of the commission
- The total amount paid (for the stock plus the commission)

Task-11 (Energy Drink Consumption)

A soft drink company recently surveyed 12,467 of its customers and found that approximately 14 percent of those surveyed purchase one or more energy drinks per week. Of those customers who purchase energy drinks, approximately 64 percent of them prefer citrus flavored energy drinks. Write a program that displays the following:

- The approximate number of customers in the survey who purchase one or more energy drinks per week
- The approximate number of customers in the survey who prefer citrus flavored energy drinks

Submission Instructions

- Store File as Lab-01-Task-01.cpp (Task Number will change with each task)
- Write Observation File for your lab task and store as readme.docx
- All .cpp files and .docx file must be compresses as YOUR_ROLL_NUMBER-Lab-01.zip
- Only submit one zip file that contains all the lab tasks.
- Discuss Problems with each other but write your code independently.
- All copied labs will be treated as zero.
- The Labs are graded and marks in the labs will be accumulated in your final results of lab.
- Never Miss a lab submission. Missing a lab means you missed a question in your examination.

********** BEST OF LUCK **********