National University of Computer and Emerging Sciences



Lab Manual # 02

Programming Fundamental

(CS118)

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| Section | BCS-1A |
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| Problem 1: |  |

Write a program that take numbers from user and do calculations on given expressions.

a=b;

c=a=d;

mul = a\*b;

sub = a-b;

add = a+b;

ans1 = mul – add;

ans2 = add – sub;

ans3 = a\*a +b\*b + c\*c -2\*a\*c;

ans4 = a\*a +b\*b + c\*c /2\*a\*c;

Take all variable values required from user and also declare variables carefully (data type).

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| Problem 2: |  |

Write a program that asks the user to enter the lengths of sides a, b, and c of a triangle. Your task is to calculate cos b. Use the formula: b^2 = a^2 + c^2 -2\*a\*c\*cos b. You can use CMATH library to for cos function. Use pow function to calculate the square.

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| Problem 3: |  |

Write a program that takes gross monthly salary of a user and do the following tasks:

**1.** Calculate the 5% provident fund, and 16% government sales tax (GST) of the gross monthly salary.

**2.** Now calculate his net monthly salary after deduction of provident fund and GST.

**3.** Calculate the gross and net annual salary.

**4.** It is the policy of organization to make the provident fund amount double at the end of each year. Calculate the amount of provident fund at end of the year.

**5.** Calculate the gross salary for next 2 years with each year 3% increment and 1.5% tax deduction.

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| Problem 4: |  |

Write a program that should display following menu on console.

* Zinger: Rs 386.57
* J&amp;J Special Wrap: Rs 524.43
* Fries: Rs 186.72
* Large Kebab stuffed Pizza: Rs 2497.95
* Regular drink: Rs 78.32

The above-mentioned prices are for single item. Now get the order from the user by asking the

quantity against each of these items. Calculate and display a detailed bill to the user.

1. each items total price like 3 zingers: 386.57 \* 3 = 1159.71,

2. the subtotal of the sale,

3. the amount of sales tax, assume the sales tax is 16%.

4. and the total: Total bill = Subtotal of Sale + Sales Tax

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| Problem 5: |  |

Write a program to find the remainder. Take two numbers from user and find the reminder.

**For example 10/3 , Ans = 3 and Remainder = 1;**

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| Problem 6: |  |

**Determine the value of number on every stage.**

**#include<iostream>**

**using namespace std;**

**int main()**

**{**

**int num1;**

**// get number from user**

**num1=0;**

**cout<< "Number is =" << num1 << endl << "and number is= " << num1++ << endl << "After increment " << ++num1<< endl << "at the end= " << num1;**

**num1=10;**

**cout<< "Number is =" << num1 << endl << "and number is= " << num1-- << endl << "After increment " << --num1<< endl << "at the end= " << num1;**

**}**

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| Important Note: |  |

