**Assignments**

**Basics of C# Lab Assignments:-**

**Q1.** Using **switch** statement to calculate the results of two numbers given by users according to choice entered for addition, subtraction, multiplication and division

**Q2.** Program to print average of n numbers using **do-while** statement

**Q3.** Program to print math table of any number using **while** statement

**Q4.** Program to calculate and print sum of first n natural numbers using **for** loop statement

**Q5.** Create a program, which accepts input of 3 numbers as input from the user and prints the largest and smallest of 3 numbers.

**Q6.** Write a program, which accepts input of string from the user and counts the number of letters, no of words and no of vowels in the input word.

**Q7**. Program to calculate and print the division obtained by the student checking the conditions: [Hint: use if-else statement]

Percentage equal to or above 60 ----- First Division

Percentage between 50 and 59 ----- Second Division

Percentage between 40 and 49 ----- Third Division

Percentage less than 40 ----- Fail

**Q8.** Program to calculate and print electric charges obtained by customer checking certain conditions

Units<=200 rate Rs 0.5

Units>200 and <=400 rate Rs 0.65

Units>400 and <=600 rate Rs 0.80

Units>600 rate Rs 1.00

**Q9**. Write a program which accepts input of marks for C#,asp.net and Sql Server(3 subjects),calculates the average and prints result as passed or failed

If avg < 50 then failed else passed.

**Q10**. Generate the Fibonacci sequence. Starting with 0, 1 add them up then take the result and add it to the last number and repeat.

**Answer should look like: 0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597**

**2584 4181…**

**Q11.Write a program to do the following:**

Accept the item code, description, qty and price of an item. Compute the total for the item.

Accept the user’s choice. If the choice is ‘y’ then accept the next set of inputs for a new item and compute the total. In this manner, compute the grand total for all the items purchased by the customer.

If the grand total is more than Rs. 10,000/- then, the customer is allowed a discount of 10%.

If the grand total is less than Rs. 1,000/- and the customer chooses to pay by card, then a surcharge of 2.5% is levied on the grand total.

Display the grand total for the customer.

**Q12. Compound Interest**

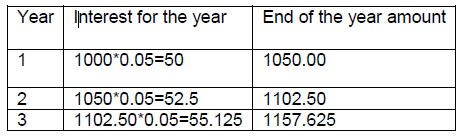
Compound interest arises when interest is added to the principal, so that from that moment on, the interest that has been added also itself earns interest. This addition of interest to the principal is called compounding. A bank account, for example, may have its interest compounded every year: in this case, an account with $1000 initial principal and 20% interest per year would have a balance of $1200 at the end of the first year, $1440 at the end of the second year, and so on.

**Objective:**

Understand which type of loop to use.

**Problem Statement:**

You deposit Rs 1000.00 in the bank account at 5% annual compound interest. The interest is paid once at the end of the year. What if you are interested in becoming a millionaire (Rs 1000000.00)? How long will it take to reach one million?

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**Q13. Credit card bill**

**Objective:**

Understand which type of loop to use.

**Problem Statement:**

You owe the credit card company 1000.00 rupee. The company charges you 1.5% per month on the unpaid balance. You have decided to stop using the card and to pay off the debt by making a monthly payment of N rupee a month. Write a program that asks for the monthly payment, the program writes out the balance and total payments so far for every succeeding month until the balance is zero or less.

**Sample Input:**

Enter the monthly payment: 100

**Sample Output:**

Month: 1 balance: 915.0 total payments: 100.0

Month: 2 balance: 828.725 total payments: 200.0

Month: 3 balance: 741.155875 total payments: 300.0

**Q14. Working with Class Library project**

**Employee details creation**

This exercise will create and store employee object details using class library project template.

**Objective**

To understand how create and consume class library sharable code.

**Problem Statement:**

Create a classlibrary project to hold class for employee with following features:

-**StoreEmployee** --- for initializing class fields

-**CalculateBonus** --- for bonus calculation

-**DisplayEmployee** --- for displaying

Display method should display all details along with bonus

Create another console project to use class from the above library

**[Hint:**

**Step1: create ClassLibrary project and define employee class and build dll**

**Step2: create console project and add reference of dll in it.**

**Step3: use namespace in console project at the top**

**Step4: use class and its features]**

**OOPS using C# Lab Assignments**

**Ques15: Student’s Result**

**Objective**

To work with arrays

**Problem Statement:**

Store marks of 5 subjects of a student in an array

**int[] marks=new int[] marks {marks of 5 subjects}**

\* Write a method called "**DisplayResult**", which should display all values like marks of each subject, average marks and result based on the following rules:

\* If marks of any one subject is less than 35 print result as failed

\* If marks of all subject is >35 but average marks is < 50 then also print result as failed

\* If avg > 50 then print result as passed.

**Ques16: Bank Account – Working with Class**

Create a class called "Account" which has data members like Account no, Customer name, Transaction type (d/w), amount, balance

D->Deposit

W->Withdrawal

-Define a method "DoTransaction", If transaction type is deposit call the credit(int amount) and update balance in this method.

-If transaction type is withdraw call debit(int amt) and update balance

-Pass the other information like Acount no,name through constructor method

-Call the show data method to display all the values Accno,name and balance.

**Ques17: Working with Constructor**

Create a class called Person which stores the following information:

* First name
* Last name
* Email address
* Date of birth

Add constructors that accept the following parameter lists:

* All four parameters
* First, Last, Email
* First, Last, Date of birth

Add the following methods:

* Adult – to display whether or not the person is over 18
* Birthday –checks whether today is the person's birthday and display a Birthday message.

**Ques18: Compound Interest – Polymorphism using Interface**

Create a project with following one interface and two classes:

**1)** **IInterest**: has a method "**CalculateInterest**" accepting three parameters "principal","rate" and "years". Implement this interface in the following two classes:

**2)** **SimpleInterest**: has the overridden method "**CalculateInterest**" as per simple interest formula "(P\*R\*T)/100" and returns the interest value.

**3)** **CompoundInterest**: has the overridden method "**CalculateInterest**" as per compound interest formula "P\*(1+R/100)^T" and returns the interest value.

**[Hint: Math.Pow(x,y) can be used for power function]**

•Use these classes which takes input of the three data "principal","rate" and "years" and asks user which interest(SI or CI) is needed and hence displays the corresponding interest value.

**Note:**

-You have to use only one object throughout.

[Hint: Use Dynamic Polymorphism]

**Ques19: Inheritance**

Create a class for Hyundai which has the members:

-maximum speed limit

-method:

-**SetMaxSpeed**: should set the max speed of hyundai to 120Km/Hr

-**ToString** : should display the details of maximum speed limit

Create following two derived classes inheriting Hyundai:

**1) Hyudai Era**

-methods:

-**SetMaxSpeed**: should set the max speed of hyundai to 80Km/Hr

-**ToString** : should display the details of maximum speed limit

**2) Hyudai Magna**

-methods:

-**SetMaxSpeed**: should set the max speed of hyundai to 70Km/Hr

-**ToString** : should display the details of maximum speed limit

**Ques20: Customer Feedbacks – working with Array of Objects**

A coffee shop would like to find out the customer feedback rating about its services. The customer class shown below:

**Customer**

**-FeedbackRating: double**

**-MobileNumber: String**

**-Name: String**

**Example**: Assume that the shop will collect feedback from ‘N’ customers. Following are the sample customer feedback values.

**Customer 1: 3 out of 5**

**Customer 2: 4 out of 5**

**Customer 3: 2.5 out of 5**

Write an application which creates array of ‘N’ customer objects to store feedback values of these customers and print the average feedback rating.