Practice the given problems for your pending lab exams and make a report in a word file. Write the programs with flow chart and algorithms. And also give the screenshot of the output at the end.

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| 1. Suppose you are meeting with your friend in school reunion after a long time. You don’t have the number of your friend. Assume your friends name is Ritu. You have given your number and then your friend also gives her number to you. After some time, she said I have another number keep that one also. That’s my official number. I use it during my office hours. So then again in your phone you are saving her number under the same contact. Now which OOP features resemblance the situation. Write a C++ program on it. | CO2  PO3  C3 |
| 1. Write a C++ program that reads a floating-point number. If the number is zero it prints "zero", otherwise, print "positive" or "negative". Add "small" if the absolute value of the number is less than 1, or "large" if it exceeds 1,000,000.   Test Data Input a number: -2534 Expected Output :  Negative | CO1  PO2  C3 |
| 1. Following is a statement:   C++ is an OOP language  In this sentence there are 8 vowels and 8 constants.  Write a C++ program that will take a string as an input and will count the number of vowels and constants in it. | CO1  PO2  C3 |
| 1. Suppose you have a savings account in Dhaka bank. In that account you have some transaction record. Every month you get some deposit in your account and you also withdraw some money monthly. After all of the transactions of the month only you get to know the total balance information in your mail sent by the bank authority.   Now which OOP features resemblance the situation. Write a C++ program on it. | CO2  PO3  C3 |
| 1. In this pandemic situation the HSC 2020 batch students got auto pass as there was no other way to take the exam by endangering the lives of those students. There HSC result was generated from their JSC and SSC. For calculating their GPA 25 % GPA was taken from JSC and 75% was taken from SSC.   Now write a C++ program where you will have to take input of the marks of a student for the subject English for both JSC and SSC and find out the HSC marks along with the grade of each subject Where,  80-100: Grade A, 70-79: Grade B, 60-69: Grade C, 50-59: Grade D, less than 50 fail.  For example:  In English the student got 70 in JSC and 90 in SSC. So his/her marks in HSC for English will be (70×25%)+(90×75%) =17.5+67.5 =85 in HSC. grade A. | CO1  PO2  C3 |
| 1. A constructor in C++ is a special method that is automatically called when an object of a class is created. A destructor function cleans up any resources allocated to an object. In a class there are 3 constructors. To clean up the allocated resources create a destructor function.   Write a C++ program on the above concept where the Name of the Class will be your name. and member variable should show your age and height. | CO1  PO2  C3 |
| 1. Write a C++ program to find all pairs of elements in an array whose sum is equal to a specified number.   Java Array Exercises: Pairs of elements in an array whose sum is equal to a specified number | CO1  PO2  C3 |
| 1. Suppose you are meeting with your friend in school reunion after a long time. You don’t have the number of your friend. Assume your friends name is Ritu. You have given your number and then your friend also gives her number to you. After some time, she said I have another number keep that one also. That’s my official number. I use it during my office hours. So then again in your phone you are saving her number under the same contact.   Now which OOP features resemblance the situation. Write a C++ program on it. | CO2  PO3  C3 |
| 1. Write a program that accepts three numbers from the user and prints "increasing" if the numbers are in increasing order, "decreasing" if the numbers are in decreasing order, and "Neither increasing or decreasing order" otherwise. Go to the editor   Test Data  Input first number: 1524  Input second number: 2345  Input third number: 3321  Expected Output :Increasing order | CO1  PO2  C3 |
| 1. Suppose you go to an Ice Cream Parlor (ABC Ice Cream) near your home one day and you buy a vanilla flavored ice-cream. A week later, while traveling to the town nearby, you spot another Ice Cream Parlor (of the same chain, the ABC Ice Cream). You went to that shop and found a new variant of the Vanilla flavor ice-cream which had a twist of Chocolate flavor too in it. You really liked the new flavor. Once back home, you again went to the ice cream parlor near your home to get that amazing new flavor ice cream, but unfortunately, you couldn't, because that was a specialty of the parlor which was located in the neighboring town. Now which OOP features resemblance the situation. Write a C++ program on it. | CO2  PO3  C3 |
| 1. Create a Class called **TestClass** with a method called **Batch**. 2. create another class called **ClassOne**. And create a method with the name **SectionA** and inheritthe Class **class.** 3. create another class called **ClassTwo**. And create two methods with the name **SectionC** and **SectionD.** And inheritthe Class **class.**   Now access all the class from another class named **School**. Create object of the three classes and also access the methods from each class. | CO1  PO2  C3 |

*Bloom’s Taxonomy Levels in Cognitive Domain:*

C1: Remember; C2: Understand; C3: Apply; C4: Analyze; C5: Evaluate; C6: Create

Course Learning Outcome (CO):

CO1: Solve complex problems using various object oriented programming language features.

CO2: Design, develop and test a project based on real life problem as a group, applying the knowledge of object oriented programming concepts.

**Program Outcomes (POs):**

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| * **PO2: Problem** **Analysis**   -An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. |
| * **PO3: Design and Development**   -An ability to design solutions for complex engineering problems and design systems, components or process that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations. |
| * **PO9: Individual and Team Work**   An ability to work effectively, as an individual or in a team, on multifaceted and/ or multidisciplinary settings. |