**Class Assignment-1**

**Subject: Programming Fundamentals (TH) Batch : 21SW Year: 1st Semester: 1st**

**Instructions**

* **All the program should be build using Object-Oriented Programming concepts. You are advised to optimize your**

**code in order to improve performance (i.e., program should use less memory and less time in its execution**

* **The assignment will be submitted by each student individually.**
* **There are total ten marks.**
* **Assignment Assessment Rubrics are given in Table.1**
* **The students Rollnos mentioned in the Students List will solve and submit only those Assignment Questions given along with Students List.**
* **For assignment submission, for each Question student has to submit the ( .cpp i.e source code file) and at the time of submission the student has to explain the code and programming logic he/she has used for solution.**
* **The Assignment will be submitted and checked in the Last PF Practical/Lab**

**Assignment Assessment Rubrics (10 Marks) Roll# \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**A = Unacceptable, B = Poor, C = Acceptable, D = Adequate, E = Proficient**

**Table.1**

| **Q.** | **Code Originality (2)** | | | | | **Usability / OOP Concepts (2)** | | | | | **Results’ Accuracy(2)** | | | | | **Code Reusability (2)** | | | | | **Completeness (2)** | | | | | **Total (10)** |
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|  | **A** | **B** | **C** | **D** | **E** | **A** | **B** | **C** | **D** | **E** | **A** | **B** | **C** | **D** | **E** | **A** | **B** | **C** | **D** | **E** | **A** | **B** | **C** | **D** | **E** |  |
|  | **0** | **0.5** | **1** | **1.5** | **2** | **0** | **0.5** | **1** | **1.5** | **2** | **0** | **0.5** | **1** | **1.5** | **2** | **0** | **0.5** | **1** | **1.5** | **2** | **0** | **0.5** | **1** | **1.5** | **2** |  |
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**Students List.1 for Assignment Questions**

**The Roll nos of the students listed in the Student list 1 will solve Assignment Questions 1 to 7 only).**

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| **Roll No.** |  |  |
| 21SW004 | 21SW048 | 21SW101 |
| 21SW010 | 21SW054 | 21SW106 |
| 21SW017 | 21SW060 | 21SW113 |
| 21SW024 | 21SW066 | 21SW119 |
| 21SW030 | 21SW075 | 21SW125 |
| 21SW036 | 21SW082 | 21SW132 |
| 21SW042 | 21SW088 | 21SW138 |
|  | 21SW093 |  |
|  |  | 21SW145 |
|  |  | 21SW151 |
|  |  | 21SW160 |

1. Write a C++ program using **Object Oriented Programming concepts** to Input Votes for two candidates and find winner of the Election based on the received votes.

1. A company has following details of their employees in the file 'emp.txt'    
     
   a. Emp Id  
   b. Emp Name  
   c. Emp Address  
   d. Emp Dept (Admin/Sales/Production/IT)  
   e. Emp Phone  
   f. Emp Age  
     
   Write a C++ program to read the above file. Create new file such as Adm.txt, Sal.txt, Pro.txt, IT.txt respectively to store the employee details according to their department.
2. Construct a C++ class that contains a member function that takes an integer as an argument and return its square, when the **Space Bar key** will be pressed.
3. Consider given one dimensional array:

char chars[]={“abcdefghijklmnopqrtuvwxyz”};

write a c++ program that traverse the given array and searches for vowels and stores them in a new array named **vowels**, and displays only those **vowels**.

1. [C++ Program using structure to Store Information of a 20 Students in a Structure](https://www.programiz.com/cpp-programming/examples/structure-store-information) array.

**( Note: Declare at least three structure members of your own choice. Possible structure members can be Student rollno, student name, etc.)**

1. W[rite a program using **Object Oriented Programming concepts** to calculate gross and net pay of employee from basic salary. Create employee class which consists of employee name, emp\_id, and basic salary as its data members. Use parameterized constructor in the derived class to initialize data members of the base class and calculate gross and net pay of the employee in the derived class.](http://eduwing.blogspot.in/2014/03/use-parameterized-constructor-in.html)
2. Consider given one dimensional array:

char chars[]={“abcdefghijklmnopqrtuvwxyz”};

write a c++ program that traverse the given array and searches for consonents and stores them in a new array named **arrconsonents**, and displays only those Consonents.

**Students List.2 for Assignment Questions**

**The Roll nos of the students listed in the Student list 2 will solve Assignment Questions 8 to 14 only).**

| 21SW007  21SW014  21SW020  21SW027  21SW033  21SW039  21SW045 | 21SW128  21SW135  21SW142  21SW148  21SW154  21SW164 | 21SW069  21SW079  21SW085  21SW091  21SW094 |
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| 21SW051  21SW057  21SW063 | 21SW104  21SW110  21SW116 | 21SW122 |

1. Write C++ code to make a class that contains a member function that takes two integers as arguments and returns their Sum. The program checks to ensure that: The First number is an Odd number and the second number is an Even number. The program also checks to ensure that both numbers are positive and greater than zero. The program also checks to ensure that: the first number is greater than the second number.
2. Write a C++ class that contains a member function that takes an integer as an argument and display its table from 1 to 10, when the **Tab key** will be pressed.
3. [C++ Program using structure to Store Information of 10 employees in a Structure](https://www.programiz.com/cpp-programming/examples/structure-store-information) array.

**( Note: Declare at least four structure members of your own choice. Possible structure members can be Empno, Empname, etc.)**

1. Write a program using Object Oriented Programming concepts to calculate bonus of the employees’ admin and salesman. The admin and salesman classes derives the information from class person. Create base and all derived classes having same member functions called getdata, display data and bonus. Calculates bonus of the specified employee.
2. [Write a program using OOP (Polymorphism Overloading) to concatenate one string to another string using binary + operator overloading.](http://eduwing.blogspot.in/2013/12/concatenate-one-string-to-another-using.html)
3. Write a C++ program using **Object Oriented Programming concepts** to Input Votes for two candidates and find winner of the Election based on the received votes.

1. A company has following details of their employees in the file 'emp.txt'    
     
   a. Emp Id  
   b. Emp Name  
   c. Emp Address  
   d. Emp Dept (Admin/Sales/Production/IT)  
   e. Emp Phone  
   f. Emp Age  
     
   Write a C++ program to read the above file. Create new file such as Adm.txt, Sal.txt, Pro.txt, IT.txt respectively to store the employee details according to their department.