

Siddaganga Institute of Technology, Tumakuru – 572 103

Department of Computer Science and Engineering

Concern: Fourth Semester B.E, CSE Even 2020-21

Lab Programs Cycles

Object Oriented Programming with C++ (4RCS02)

	Cycle I																
1.	A person is eligible to vote if his/her age is greater than or equal to 18. Define a function to find out if he/she is eligible to vote.																
2.	<p>Write a program using functions to check if a number is an Armstrong number or not.</p> <p>Hint: An Armstrong number of 3 digits is the sum of cubes of each digit equal to the number itself. For example, 153 is an Armstrong number because</p> $153 = 1*1*1 + 5*5*5 + 3*3*3$																
3.	<p>Write a program which will ask the user to enter his/her marks (out of 100). Create a file “<i>student_data.txt</i>” to store the details viz. <i>USN and Percentage</i>. Write user defined functions for</p> <ol style="list-style-type: none"> Accepting the data, Search for a specific USN and display the details To list all the students with the specified percentage. 																
4.	<p>Use the above database to create a new file “<i>student_grades.txt</i>” and along with the available data compute the grade of each student as per the below table and write all the details in the new file.</p> <table style="margin-left: 40px;"> <thead> <tr> <th>Marks</th><th>Grade</th></tr> </thead> <tbody> <tr> <td>91-100</td><td>S</td></tr> <tr> <td>81-90</td><td>A</td></tr> <tr> <td>71-80</td><td>B</td></tr> <tr> <td>61-70</td><td>C</td></tr> <tr> <td>51-60</td><td>D</td></tr> <tr> <td>41-50</td><td>E</td></tr> <tr> <td><=40</td><td>Fail</td></tr> </tbody> </table>	Marks	Grade	91-100	S	81-90	A	71-80	B	61-70	C	51-60	D	41-50	E	<=40	Fail
Marks	Grade																
91-100	S																
81-90	A																
71-80	B																
61-70	C																
51-60	D																
41-50	E																
<=40	Fail																
5	Write a C++ program to create a class Fruit with following characteristics: Name, Price. Display the names of all fruits costing more than 50 rupees.																
6	<p>Develop a C++ program to add</p> <p>i) two integer numbers ii) two float numbers iii) One integer and one float numbers by overloading a function.</p>																
7	<p>Define a class to represent a bank account. Include the following members Data members:</p> <p>i) Name of the depositor ii) Account number iii) Balance amount in the account.</p> <p>Methods :</p> <p>i) Read the account details ii) To deposit an amount iii) To display name and balance.</p>																

	ii)
	Cycle 2
8	<p>Write a C++ program to create class called COMPLEX with private properties real and image and demonstrate the followings concepts by implementing suitable behaviors:</p> <ol style="list-style-type: none"> 1. Manipulators 2. Overloading functions: ADD that returns a COMPLEX numbers. <ol style="list-style-type: none"> a. ADD(a,s2) – where a is an integer (real part) and s2 is a complex number b. ADD(s1,s2) – where s1 and s2 are complex numbers. Add s2 to s1 and return s1 3. Friend Function: SUB(s1,s2)- subtract s2 from s1 and return s1
9	<p>Define a ITEM class with item_name, item_code, item_prize, number_of_items item_count as data members. Demonstrate the followings concepts by implementing suitable behaviors:</p> <ol style="list-style-type: none"> 1. Private and public member function 2. call by reference, return by reference 3. Default arguments, Inline functions 4. Friend functions and static functions, 5. Array of objects, objects as function arguments
10	<p>Create a class called TIME with private data member's hour, minute and second. Demonstrate the followings concepts by implementing suitable behaviors:</p> <ol style="list-style-type: none"> 1. Private and public member function 2. Object as function argument and returning object 3. Overloading functions: addition of two times and returns new time such as add(h,m,s), add(h,m), add(h)
11	<p>Define a VECTOR class with appropriate data members and Demonstrate the followings concepts by implementing suitable behaviors:</p> <ol style="list-style-type: none"> i. Memory management operator ii. Delete last element iii. Access first and last elements iv. Test whether vector is empty v. Return size of the vector
12	<p>Write a C++ program to create a class called STACK with private properties size, top Demonstrate the followings concepts by implementing suitable behaviors:</p> <ol style="list-style-type: none"> i. Add a new element at the top of the stack ii. Remove the element on top of the stack iii. Return the number of elements in the stack iv. Return a reference to the next element in the stack <p>Test whether Stack is empty or not.</p>
13	<p>Write a C++ program to create a class called QUEUE with appropriate data members. Demonstrate the followings concepts by implementing suitable behaviors:</p> <ol style="list-style-type: none"> i. Add a new element at the end of the queue ii. Remove the next element in the queue iii. Return a reference to the first element in the queue iv. Return a reference to the last element in the queue v. Return the number of elements in the queue vi. Test whether Queue is empty or not.

Coordinators

1. Shwetha A N(A Section)
2. Bhaskar G(B Section)
3. Shobha K(C Section)

Head of the Dept.

(Dr. A S Poornima)