Geetanjali Institute of Technical Studies

Department of CSE – Odd sem. 17-18

C++ PROGRAMMING LAB

1. Create a class that registers your details by taking reg.no, name, age and mail id. Create a function that prevents duplicate entries of objects based on reg.no.
2. Create a class account that maintains acc_no, name, and balance. Perform deposit, withdrawal and statement print operations. (statement print must print all the transactions that has taken place so for – use structures inside the class to maintain the details about transactions)

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3. Create a class that holds the details of the mobile phone like {phone_no, password, to, sent_messages}etc.,. Allow users to login with their mobile no. Use a function that sends a message from that mobile. Display each time all the messages sent from that mobile.
4. Create a class ID_card that maintains the details in an ID card. Perform insert, update, delete and display operation through functions that takes input through reference parameter.

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5. Create a C++ program that takes employee details like ID, first name, last name, age and address. Create a class for student {name, course, regular/parttime, address}. Use friend function to check that a student with same name and address can't be a regular student as well as an employee.
6. Create a C++ program that has two classes (one for employee and one for student), have a separate class for address (with door no, street name, city, state) and reuse address both for employee and student. Perform insert, delete and display operations by taking choice of person (employee or student) from the user.

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7. Create a class that stores details about the computer (Assembled/branded, RAM, HDD, processor speed, price etc.,). Use constructors to initialize the object and a destructor that deducts the count of object each time the object is passed to destroy function. Also use copy constructor to create a system with the configuration same as that's of an existing system.
8. Create a savings_account class that maintains the details of customers like name, phone number, accno, balance. Ensure that the variables are protected with proper specifiers such that only the user's personal details can be modified directly. Perform deposit, withdrawal, statement print, and pin change operations by checking for minimum balance and other conditions. Create a new account for the same user by copying the basic details of the user using a copy constructor.

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9. Create a class which maintains information like username, password, age, mailid, phone number, accepted friends list, etc.,. Declare a friend function inside the class. Create 3 users such that the first user is friend with 2 and 3 (update friend list of user 1 with user names of 2 and 3). If the user1 logs in, he should see the personal information of 2 and 3, likewise 2 and 3 should see personal info of 1. However, 2

can't see the personal information of 3 and vise versa.

10. Create a class teacher {teacher name, ID, department, subject currently handled} and student class{student name, regno, subjects, teacher, marks(midterm1, midterm2, assignment), log}such that the teacher class id made a friend of student class. Allow the teacher class to update the student information like marks and also maintain an entry in the student class log field every time an updation takes place. This log should maintain the details like teacher code, updated fields etc.,.

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11. Create a c++ program that has a class product (prod_id, name, price), which is inherited by other classes viz., belt (length, color, width), shoes (size, formal/casual, laced/non laced) and caps(diameter, water proof/not, color). List out the products available to the user and allow the user to select the products and the quantity. Overload * operator for multiplying quantity with objects. Display the product wise price and total amount.

12. Write a c++ program that maintains the date in (day/mon/year) format and overload the ++ & -- operator to view previous or next date from today's date. Ensure that the day won't exceed 30/31 for certain months.

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13. Create a class that stores the details about a room in a hotel (private: room no, type, cost). Create subclasses like Lounge (no.of people it can accommodate, A/C type(centralized/window), food preference, recreational facilities (as a string array)) and deluxe room(A/C or non A/C, single/double bedded). Create a class that maintains the customer details (name, age, address, phoneno). Allow booking of the room by the customer after checking the status of its availability. Overload the booking function such that it can book either a lounge or deluxe room for a customer.

14. Create a c++ program that Create a base class person and derived classes general public, government official and VVIP. Maintain a static array of objects using inside the persons class. Access the shared memory from all the classes to store and retrieve data. Reserve zones in that array such that they are to be used by appropriate category of people. Ensure that the space is available in each zone before you create a dynamic object of each type and store it inside the shared array.

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15. Create a class employee that maintains the details like empid, years of exp, address, phone). Create separate class for type of skills the employee possesses like carpentry (what type of wood, years, type of creations, tools used), masonry (type of constructions, years), Driving (license no, years of exp, types of vehicles). Make the employee class to inherit the three classes and have the details that are relevant for the employee. Have constructors to initialize all the classes and maintain the status in employee according to the skills (111- means have all skills). If a skill status is 0, then have the default values initialized with constructor.

16. Create a class template for list that can store names or numbers of students. Also perform the operations like insert, delete, update and display by either overloading template functions or using generic template functions.

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17. Create a class powered device (type(electronic/mechanical), power range(10W-20W), self_powered/adapter) and inherit it in two classes scanner (no.of pages per second, resolution, size, cost, brand) and printer (brand, dpi, color/b/w, pages per second, laser/inkjet). Create another class named copier that inherits the features of printer and scanner along with additional features (storage capacity, stored copy printing speed). Ensure that the duplicate copies of powered_device object don't exist in copier.

18. Create a class telephone_directory (name, occupation, phone, address) and an virtual function search (), that searches the object contents in a linear fashion. Extend the class in a specific class called doctor (qualification, clinic, visiting time) and override the virtual function such that it searches using binary search. Also create another class lawyer (qualification, civil/criminal, cases attended, contact_no, office_address) that extends the telephone_directory such that it wont override the virtual function. Search for a doctor and a lawyer by taking the option from the user.

Midterm 2

19. Create a class for house (house no, street, city, state, pincode) and a subclass vehicles (vehicle no, type(2/4 wheeler), fuel(petrol/diesel)), 2 wheeler(gear type(with/without gear), start type(kick/button), brand), 4 wheeler (A/c, music system, brand, ABS, airbag). Take the vehicle number from the user and retrieve the information on a specific parameter. Also list out the vehicles in a specific area by pincode.

20. Create a class file (filename, author, program no, prog. name, cyclesheet 1/2/3, verified/not, name of the file to which the current file is copied). List out all the files and allow creation of a new file, show the contents and copy one file to another.

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21. Create a class file (filename, creator, type of file, description) and user (username, password, phoneno). Allow the users to login and create a file, update its contents, delete a file and comparing 2 files (Use binary read into a string). Create your own exception class such that only the author of the file can edit, update and delete its contents.

22. Create a class that maintains the details like, given_no, a temporary array, and factorial_of the given no. Use a function that finds the factorial of the given number without using recursion by making use of the temporary array. Handle the array overflow exception when all the locations of the array were used and display the message "internal memory is not sufficient to carryout this operation".

Final Exam