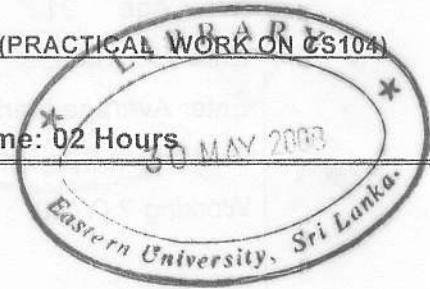


**Answer all Questions**

**Time: 02 Hours**



**Question – 01**

Write a program to illustrate the following and run the program to get the following output.

A college maintains a list of its students graduating every year. At the end of the year, the college produces a report that lists the following :

Year \_\_\_\_\_ Number of Working Graduates :

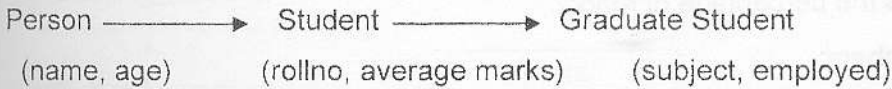
Number of non – Working Graduates:

Details of the Top – most Scorer

Name: \_\_\_\_\_ Age: \_\_\_\_\_ Subject: \_\_\_\_\_ Average Marks : \_\_\_\_\_

X % of the graduates this year are non – working and n % are first divisioners.

The program uses the following inheritance path :



The data members of these classes have been shown in the parenthesis.

The above program first reads information of a graduate (Grad Student object), processes it to check whether the graduate is working, first divisioner or not and simultaneously counts the number of working/ non-working and first divisioner graduates. Finally, using these information the program produces the desired report. The sample input and output of the above program is shown below :

Enter Year : 2006	Enter Name of the Person : Valbhav
Enter Details for Graduate 1	Adiakha
Enter Name of the Person : S Vaidyanathan	Enter Age : 22
Enter Age : 21	Enter Roll number : 45
Enter Roll number : 3	Enter Average Marks : 92
Enter Average Marks : 89	Enter Main Subject : Computer Science
Enter Main Subject : English	Working ? (Y/ N) : Y
Working ? (Y/ N) : n	

Enter Details for Graduate 5

Enter Name of the Person : Naureen John

Enter Age : 21

Enter Roll number : 52

Enter Average Marks : 65

Enter Main Subject : History

Working ? (Y/N) : n

### Report for the Year 2006

Working Graduate : 3      Non

working Graduates : 2

Details of the Top Scorer

Name : Valbahav Adiakha    Age : 22

Subject : Computer Science

Average Marks : 92

40% of the graduates this year are non

working and 100% are first divisioners.

### Question – 02

Define a class student with the following specification .

private members:

Roll\_no    integer ,      Name      20 characters

Grade      8 characters ,    Marks[5]      integer

Percentage    float.    Calculate () function    that calculate overall percentage of marks and returns the percentage of marks.

public members:

Readmarks() a function that read marks and invokes the calculate function.

Display marks () a function that prints the marks.

Write a program in C ++ to illustrate above details and run the program to get the correct output.

### Question – 03

Write a program using a class to store price list of 5 items and to print the largest price well the sum of all prices.

(Hint : sample output for each items details

main menu

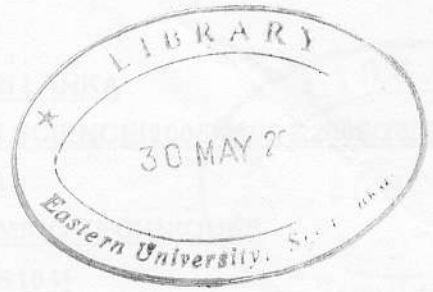
1. Display largest price .
2. Display sum of prices .
3. Display item list.

Enter your choice (1-3) : 1

The largest price is 98

Code price

101 23  
102 44  
103 98  
104 67  
105 68 )



Question – 04

The test results of a batch of students are stored in three different classes. Class student stores the *student number*, class test stores the *marks* obtained in two subjects and class results contains the *total* marks obtained in the test. The class results can inherit the details of the marks obtained in the test and the *student\_number* of students through multilevel inheritance. Assume that we have to give weightage for sports before finalizing the results. The weightage for sports is stored in a separate class called sports. Write a program in C++ to show inheritance relationship between the various classes that would be as shown below.

