

**Programming Fundamentals**

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| Lab 07 | |
| **Topic** | File Handling and Pointers |
| **Objective** | * Reading data from files till end of file (All contents) * Hands on practice of pointers in C++ |

**SECTION-A**

**Question No: 01**

Write a program in C++ and ask user to enter CGPA of each student in class. Store all values in a float array of size 15. Save all array values in a program in single line where each value is seperated by comma(,). Now, read all values from file and print the highest CGPA taken by any student in the class.

**Sampe Output**

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| --- | --- |
| How many students are there in class? **7**  *Enter student 1 CGPA:* ***2.45***  *Enter student 2 CGPA:* ***3.78***  *Enter student 3 CGPA:* ***3.98***  *Enter student 4 CGPA:* ***1.98***  *Enter student 5 CGPA:* ***2.7***  *Enter student 6 CGPA:* ***3.01***  *Enter student 7 CGPA:* ***3.24***  Highest CGPA in class: **3.98** | Record.txt |
| 2.45,3.78,3.98,1.98,2.7,3.01,3.24 |

**Question No: 02**

Write a program in C++ which saves 1000 random values(All values should be in range taken by user at run time. Ask user to enter starting value of range and ending value of range) in a text files with each value separated by a space character. Now, you have to read these values and print only those values which are prime numbers. At the end also print total no. of prime values found int the file.

**Sampe Output**

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| --- | --- |
| **Enter starting Range: 78**  **Enter ending range : 32767**  **Prime No. found in the file are as following:**  **11, 17, 5, 31, 13, 29**  **Total values found: 6** | **Data.txt** |
| **5 45 78 81 11 32 0 4 17 12 25486 5 31 14 16 162 874 13 130 145 165 2545 29 . . . 45 93**  **(Assume these are 1000 values)** |

**Question No: 03**

Write a C++ program to store student record of a class. You have ask user to enter total no. of students in the class. Read following pieces of information about each student from user:

* Name
* Age
* CGPA
* Course name (i.e. BS Psychology)
* Grade

Store this data in 4 different text files (Name.txt to store Name and course name, CGPA.txt to store cgpa, Age.txt to store age , and Grade.txt to store grades)

**Sampe Output**

|  |  |
| --- | --- |
| **Enter total no. of students in class: 3**  **Student 1 Information:**  **Enter Name: Aleeza Ali**  **Enter Age: 19**  **Enter CGPA: 3.14**  **Enter Course Name: BS Physics**  **Enter Grade: B**  **Student 2 Information:**  **.**  **.**  **.**  **Student 3 Information:**  **.**  **.**  **.**  **Enter Grade: A**  **Your data has been saved in all relevant files. Thank you!** | **Name.txt** |
| Aleeza Ali  BS Physics  Hassan mushtaq  MS Computer science  Ahmad rafeeq  BS Chemistery |
| **CGPA.txt** |
| 3.14 3.41 2.46 |
| **Age.txt** |
| 19 17 21 |
| **Grade.txt** |
| B C A |

**Question No: 04**

Write a C++ program which reads the students information from different files as stored in Question No. 03(Name, Descipline, Age, CGPA, Grade etc stored in 4 different files), and display the data in a format given in sample output. You have to show only record of Top N students. (Top students will be selected on the basis of their CGPA).

***Note****: Read N from user.*

**Sampe Output**

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| --- |
| **How many students you want to retreive from database? 1**  **Total student found in database: 3**  **Record of N students is as following:**  **\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Student 01 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***  **Name:**  AleezaAli  **Descipline:**  BSPhysics  **Age:**  19  **CGPA:**  3.14  **Grade:**  A  **\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*** |

**Question No: 05**

Write a C++ program to swap values of two variables using their pointers.

***Note****: You can not use 3rd variable or 3rd pointer.*

**Sampe Output**

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| --- |
| ***Befor Swaping...***  *X contains: 25*  *Y contains: 75*  ***After Swaping...***  *X contains: 75*  *Y contains: 25* |

**Question No: 06**

Write a C++ program to ask user to enter First value, Second value (both are of type float), and an operator (to perform an arithmatic operations on two values). Declare 3 pointers which are pointing to these 3 data items. Now, perform relvant arithmatic operation (Addition, Subtraction, Multiplication, or Division) using only pointers and display result which is stored in another pointer which is pointing to another variable result.

**Sampe Output**

|  |
| --- |
| *Enter 1st value:* ***50***  *Enter 2nd Value:* ***10***  *Enter an operator (+, -, \*, or /):* ***/***  ***Division is: 5*** |