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1. Let r be your roll number (an integer between 1 and 62)

Perform the following computations using a C program

$$r1 \leftarrow (r + 10)^2 + 999$$

if r is odd

. $r \leftarrow$ first two digits of $r1$

else

. $r \leftarrow$ last two digits of $r1$

if ($r < 10$)

. $r+ \leftarrow 10$

let $d3 \leftarrow r\%3$

let $d4 \leftarrow r\%4$

Display r , $d3$, and $d4$

2. Refer $d3$ calculated above. Depending on the value of $d3$, do one of the following three tasks using a function. The arguments passed to the function are an array and its size.

If $d3==0$

Find the sum of alternate elements of an array. Return this sum. From `main()` print the array and the sum.

If $d3==1$

Sort an array. The function shall return the sorted result as another array. The original array should not be modified. From the `main()` print both the arrays.

If $d3==2$

Find the largest and smallest elements of an array without sorting. Store these two values into another array of size two. Return this array. From the `main()` print the array and the results.

3. Refer r and $d4$ calculated in the first question. Let n is an integer such that $n \leftarrow r/3$

A text file "list.txt" showing the roll numbers and marks in three subjects are given. From this file store the details of n students from n -th student using structures, `fseek()`, and `fwrite()` into another binary file "list.xx", where xx is your two digit roll number.

Then perform one of the following tasks.

If $d4==0$

From "list.xx" using `fread()`, and `fwrite()` create another binary file "list.n.xx" which also have the total marks of each student along with the given details. Print the three files with appropriate headings.

if $d4==1$

From "list.xx" using `fread()`, and `fwrite()` create another file "list.n.xx" which will have a new column to indicate in how many subjects each student has passed the exam. Pass minimum is 50 marks. Print the three files with appropriate headings.

If d4==2

From "list.xx" using fread(), and fwrite() create another file "list.n.xx" which will have a new column to indicate in how many subjects each student has scored 90 or above marks. Print the three files with appropriate headings.

If d4==3

From "list.xx" using fread(), and fwrite() create another file "list.n.xx" which will have the details of only those students who have passed all exams. Pass minimum is 50 marks. Print the three files with appropriate headings.
