

CSE2031

Winter 2016 Practice Questions

Here are some practice questions to test your C abilities

Question 1

Read an integer and displays how many *different digits* in that integer.

For example if the input is

| Input | output |
|-------|--------|
|-------|--------|

| | |
|-------|------------------------------|
| 43665 | 4365 the second 6 is removed |
|-------|------------------------------|

| | |
|----------|--------------------------------------------|
| 12132152 | 1235 the repeated 1's, and 2's are removed |
|----------|--------------------------------------------|

Note that the order of the displayed digits is the same as the order in the original integer.

Question 2

Read a string from the standard input and display the character with the most repetition. If there are more than one character with the same repetition, display all of them.

Question 3

Write a function to read a string from the standard input and calculate the length of the string. Consider two cases, if the string ends with a white space, and if the string ends with a new line. **Do not use strlen.**

Question 4

Write a program to read a string terminated by a new line character and display the string after removing all white spaces (space(s) and tab(s))

Question 5

Write a program that accept the following file from the standard input. The file contains the voting results of an election by precinct.

Results of a fictional election.

| Candidate | A | B | C | D |
|-----------|-----|-----|-----|-----|
| Precinct | | | | |
| 1 | 312 | 520 | 425 | 612 |
| 2 | 470 | 312 | 456 | 123 |
| 3 | 753 | 159 | 852 | 456 |
| 4 | 147 | 258 | 369 | 759 |
| 5 | 951 | 856 | 751 | 125 |

The actual file used for testing is in the same format. The number of precincts may vary, and of course the number of votes may vary.

Your program should display the winner of the election, and the percentage of the votes he/she got.

Question 6

Consider the following table for roman numerals.

| Decimal value | Roman numeral |
|---------------|---------------|
| 1 | I |
| 4 | IV |
| 5 | V |
| 9 | IX |
| 10 | X |
| 40 | XL |
| 50 | L |
| 90 | XC |
| 100 | C |
| 400 | CD |
| 500 | D |
| 900 | CM |
| 1000 | M |

Write a program to read a roman numeral as a string and display the value (in decimal).

The processing is done left to right, for example the string MCMXCVI

M CM XC V I

1000+ 900 + 90 + 5 +1 = 1996

Keep in mind that C =100, but CM=900, so when you see C you don't know what is the value until you see the next char.