Q1

Users are required to enter an integer variable 'a' using the keyboard (STDIN).

Please check the following conditions:

• If a is odd then print: “a is odd”

• Else print: “a is not odd”

Below is an example of bow the program will run:Enter the values 1or 2 for ‘a’

A black and white image of a computer

Description automatically generated

*Note: You are given a cpp file to edit, you con odd more functions if needed, but be careful when addingcode to the main function. You only need to add code to the part below '@STUDENT:'*

*Q2*

Users are required to enter a non-negative integer variables n using the keyboard (STDIN).The system displays the sum of all even numbers that smaller or equal nBelow is an example of how the program will run:Enter the value 5 for 'n':

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Description automatically generated

Q3

Your program allows users to enter 4 float numbers.

The system displays the entered numbers in descending order. Each number has only two decimals places.

Below is an example of bow the program will run:

A black screen with white text

Description automatically generated

Q4

Your program allows users to enter an integer number 'n'.The program prints out a hollow inverted pyramid star pattern of height 'n\*.Below is an example of how the program will run:

A black screen with white text

Description automatically generated

The result does not contains the space after \*.

Q5

Your program allows users to enter array of n integers, where n is entered by the user (n should be keptas a small value, in this case, n<=10). Your program should then print the sum of squared of each oddinteger.

Hint: It is possible to use Int\* array =(int \* malloc(sizeof(int)\*n) to create a dynamic array.

Below are some examples:

|  |  |
| --- | --- |
| n=5  array =(1,3,5,2,3) | n=3  array =(1,2,3) |

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Description automatically generated

Q6

Your program allows users to enter a long string 'o' and short string 'p'. The system replaces all occurrences of 'p' in 'o' by the inverse of 'p'.

Below is an example:

A black and white screen with white text

Description automatically generated

Q7

Your program should allow users to find the even number that appears the most in the array of 7

integers.

When the even number that appears the most in the array, your program prints out that number.When there is no even number existing in the array, your program prints to output: Pew!!!Below is the example show how the program works:

|  |  |
| --- | --- |
| There is/ are most appearing even numbers | There is no even number |

A screenshot of a computer

Description automatically generated

Q8

Your program should allow users to enter a decimal number from 48 to 90, then it should display the

corresponding character in the ASCII table.

Example:

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Description automatically generated

Your program should allow users to enter an integer number 'n', then it should display the product of all

the digits forming ‘n’.

Example:

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Description automatically generated

Q10

Your program should allow users to enter an integer number 'n', then it should display the sum of the

first and the last digits forming 'n'.

Example:

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Description automatically generated

Q1

Your program allows users to enter a side length of a square ‘x’ using the keyboard (STDIN}.

Please print out the perimeter of the square with 3 decimal places Where, perimeter = 4 \* length

Below is an example of how the program will run:

Enter the value 2.86 for ‘x’

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Description automatically generated

Q2

Users are required to enter six integer numbers using the keyboard (STDIN).

The program needs to sum calculate of the even rubbers among the entered values. The program then displays this number on screen.

Below is an example of how the program will run:

A black screen with white text

Description automatically generated

Q3

Tour program allows the user to enter an array of W integer numbers, where ‘n’ is entered from the keyboard (STDIN)

Program to print the odd numbers sorted in ascending order There is a newline character "\n" between any two printed numbers.

Below is an example when ‘n’ = 7; elements {5, -4, -5, 9, 15, 8, 10)

A black screen with white text

Description automatically generated

Q4

Users are required to enter an integer number to define 'rows\* of the half Pyramid pattern (row > 0}.

Program prints out the half Pyramid of number.Below is an example of how the program will run.For example, enter 6 for ‘row.’

A computer screen with numbers and letters

Description automatically generated

Q5

Your program allows users to enter an array of ’n' integer numbers, where the user enters ‘n’ (0<n<10). Then the user enters an integer number 'p' which is the position of an element to remove from thearray (0<p<=n).

Below is an example of how the program will run when entering the values 5 lor ‘n’; the values of thearray include {6, 10, 0, 9, 7}; 3 for ‘p’

A screen shot of a computer

Description automatically generated

Q6

Your program allows users to enter a string: ‘s’ with maximum length of 100 characters.

The system finds characters in the alphabet m the position with an odd index to convert to uppercase characters.

Below is an example with ‘s’ is “abcd4ae”:

A black screen with white text

Description automatically generated

Q7

Your program allows users to enter array of 'n' integer, where 'n is entered by the user (n < 10)

The program prints the squared of each entered even number following the order that they were entered.

There is a newline character “\n” between any two printed numbers.Below is an example when ‘n’= 5

A black screen with white text

Description automatically generated

Q8

Your program should allow user\* to enter an integer number a' The program should check if ‘a’ is a power of I or not. If it is, the program prints the exponent ‘n’ that makes the number '1' the power of 2; else, the program prints: “a is not a power of 2” where ‘a’ is the entered number from user.Example:

A screenshot of a computer

Description automatically generated

Q9

Your program allows users to enter a string 's' with maximum length at 100 characters The system finds and remove all characters m a string except the alphabet characters (a-z, A-Z).

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Description automatically generated

Q10

Your program allows the user to input an integer ‘n’.

Print out: “n h a perfect number” or “n is not a perfect number” where a perfect number is a number that is equal to the sum of its divisor.

Below is an example:

A screenshot of a computer

Description automatically generated

Q1.

Users are required to enter a side length of a square: x using the keyboard (STDIN).

Please print out the area of the square with 2 decimal places.

Below is an example of how the program will run:Enter the value 1.77 for ‘x’

A black screen with white text

Description automatically generated

Q2.

Users are required to enter five integer numbers using the keyboard (STDIN).

The program needs to find the maximum even number among the entered values. The program then displays this number on screen.

Below is an example of how the program will run:

A black screen with white text

Description automatically generated

Q3

Your program allows users to enter 5 “integer” numbers.

The system sorts the entered numbers in ascending order. The system then displays only the even numbers to screen. There is a newline character between any two adjacent numbers.

Below is an example of how the program will run:

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Description automatically generated

Q4

Your program allows users to enter height ‘h’ of a pyramid (h < 20).The program prints out half of the pyramid filled with character ‘\*’.Below is an example of how the program will run:

A black screen with white text

Description automatically generated

Q5

Your program allows users to enter array of n integers, where n is entered by the user (n < 10).

The program removes all duplicated odd numbers (keeps only the first occurrence of the numbers).

Then, the program prints the resultant list of numbers (after removing the duplicated ones).

Between any two numbers, there is a newline character.

Below is an example how the program works:

A screen shot of a computer

Description automatically generated

Q6

Your program allows users to enter a string: ‘s’ with maximum length of 100 characters. The system finds the number of words starting with letter 'h' and ending with letter 'g' in ‘s’. Finally, the system prints out that number.

Below is an example:

s=healing hopping feeling going

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Description automatically generated

Q7

Your program should allow users to enter an array of ‘n’ characters where ‘n’ < 20, ‘n’ is entered by users.

It finds and displays the first two characters appearing the most (having the highest frequencies) among the entered characters.

The program outputs each character on a separate line. The order of output characters follows the order they were entered by users.

Below is the example show how the program works:

A black screen with white text

Description automatically generated

Q8

Your program should allow users to enter an integer number: ‘a’. The program should check if ‘a’ is a power of 2 or not. If it is, the program prints the exponent ‘n’ that makes the number ‘a’ the power of 2; else, the program prints: “a is not a power of 2” where ‘a’ is the entered number from user.

Example:

A screenshot of a computer

Description automatically generated

Q9

Your program should allow users to enter a string ‘s’ with maximum 100 characters, then it should display the number of characters in the first three words of ‘s’. Words are separated from each other by a space character.

Examples:

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Description automatically generated

Q10

Your program should allow users to enter an integer ‘n’.

The program prints hexadecimal representation of ‘n’ if it is a prime number; else the program prints: “n is not a prime number” where ‘n’ is the number entered by the user.

Examples:

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Description automatically generated

Q1

The program allows the user to input two real numbers, ‘x’ and ‘y’, from the keyboard, with the vatue of ‘y’ non-zero.

Prior the result af the x/y calculation with three digits after the decimal point.

Here is an example of how the program runs:

|  |  |
| --- | --- |
| Enter x= 3.5555; y=5.222  A black screen with white text  Description automatically generated | Enter x> 3.5555; y=5.222  A black screen with white text  Description automatically generated |

Q2

The program allows the user to enter a real number from the keyboard. This real number is the score of

a subject holding the test.

The program prints to the screen with the following cases:

- “Passed with the score: score”, if 5.0 <=score <=10.0

- “Failed m ith the score: score”, if 0.0 <= score < 5

Here is an example of how the program will run:Enter values for the score; 7.5

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Description automatically generated

Q3

The program allows the user to enter five integers from the keyboard (STDIN),The program prints the total value of numbers divisible by 3 and not by S on the screen.Below is an example:

A black screen with white text

Description automatically generated

Q4

Users are required to enter an integer number to define "rows" of the half Pyramid pattern (row > 0). Program prints out the half Pyramid of numbers.Below Is an example of how the program will run.For example, enter 6 for “rows":

A computer screen with white numbers

Description automatically generated

Q5

The program allows the user to input an Integer array of ‘n’ elements. With ‘n’ and the value of the elements entered from the keyboard.

The program prints to the screen the elements are arranged in ascending order In the order of odd numbers first, even numbers later.

An example of how the program runs Isas follows:

Enter: n = 6; array = {4, 9, 8, 2, 7, 3}

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Description automatically generated

Q6

The program allows the user to enter a string of characters from the keyboard, with a maximum length of 100,

Then, check the characters in the entered string. If the check character is a lowercase letter, it will be converted to an uppercase letter.

Print to the screen the character string after the conversion has been completed.Below is an example: s = “prf192 - c Programming”

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Description automatically generated

Q7

Your program allows the user to enter an integer array of ‘n’ elements

The system finds the index of the first pair with a given sum in the collection, A newline character ‘\n’ exists between any two printed indexes.

Beiow is an example when ‘n’ = 6; array = {6, 8, 4, -5, 7,9}; sum = 15

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Description automatically generated

Q8

Your program allows the user to enter an integer array of ‘nr elements from the keyboard.

The program swaps the places of the first largest and smallest even numbers with each other.

Below is an example:

Enter n = 7; array = {5, 2, 8, 0, 9, 6, 20}

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Description automatically generated

Q9

Your program allows the user to enter a string V with a maximum length of 100 characters.

The system converts the two first letters of each word to uppercase.

Printout the string 's' after the conversion.

Below are two examples of how the program will run:

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Description automatically generated

Q10

Your program allows the user to input an integer ‘n‘.

Print out: “n is a perfect number” or “n is not a perfect number”. A perfect number is a number equal to the sum of its divisor.

Below is an example:

|  |  |
| --- | --- |
| n=6 | n=10 |

Q1

The program allows the user to enter three reals from the keyboard.

Print to the screen the average of three numbers with two decimal places.

Here is an example:

Enter three numbers with the value; 5.5; 6; and 8.6.

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Description automatically generated

Q2

The program allows the user to input an array of integers consisting of ‘n’ elements from the keyboard.

Print to the screen the sum of the values of the odd numbers.

Here is an example of how the program will run:

Enter: n = 6, elements: 9, 7,12, 8, 6, 15

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Description automatically generated

Q3

The program allows the user to enter a positive integer ‘n’ from the keyboard.

The program checks and prints to the screen if ‘n’ is a leap year and vice versa. Knowing that a leap year is a year that obeys one of the following two principles.

- A leap year is a year that is divisible by 400:

- A leap year is a year that is divisible by 4 but snot divisible by 100

Here Is an example of how the program will run:

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Q4

Your program allows to print out a half diamond star (\*) pattern with Jnr columns entered by user (‘n’ is an integer number).

Below is an example when user enter ‘n’ = 6

A screenshot of a phone

Description automatically generated

Q5

Your program allows users to enter an integer array of ‘’n’ (n>0) elements entered from the keyboard. The program put even and odd elements in separate array, And then prints out two lines result on the screen

Here is an example of how the program will run:

A black screen with white text

Description automatically generated

Q6

Your program allows the user to enter a string of characters from the keyboard. The program to toggle case of each character (a-z A-Z) in this string.

The program prints out result on the screen.Below is an example of how the program will run:

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Description automatically generated

Q7

The program allows the user to enter the values of the elements of the square matrix as integers with

the same number of rows and columns and input from the keyboard.

Print the sum of the elements on the main diagonal of the matrix.

Below is art example:

When 'rows' = 3; array ={ 10 8 4

-5 15 1

7 2 3}

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Description automatically generated

Q8

Your program allows the user to enter an integer array of ‘n’ elements from the keyboard.

The program prints the elements with unique values in ascending order, between the elements

separated by a space.

Below is an example:Enter n = 7; array = {8, 5, 8, 5, 9, 6, 9}

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Description automatically generated

Q9

The program allows the user to enter a list of ‘n’ student names from the keyboard, each student name separated by a space.

Continue, enter a search character,

The system finds and prints the names of students whose letters start with the search character.

Below is an example of how to run the program:

Enter: n = 5, names = {"Dung", “du", “Duong", “Duc", “Toan"}, searchKey = ‘D’

Q10

Your program should allow users to enter an integer 'n'.

The program prints hexadecimal representation of 'n' if it is a prime number, else the program prints:”n is not a prime number” where ‘n’ is the number entered by the user.

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