Array square

An array of N integers is passed as input to the program. The program must print another array where value at each index will be the sum of the square of all the values in the input array except the value at that index in the input array.

[Input format: First input refers to the no of elements in the array and the next is the series of elements in the array]

**Sample Input1:**

5

1

2

3

4

5

**Sample Output1:**

54

51

46

39

30

Generate number using odd digits

Jose gets n numbers in an array. Write a Java program to take the single digit odd numbers in the array and make a number by combining those odd numbers alone.

Example: If the array is {2,7,14,24,41,3} the output should be a single number 73, if not found print "Single digit odd number is not found in the array".If the array size is zero or lesser then display the message as "Invalid array size"

**Sample Input 1:**

Enter the size of an array:

4

Enter the array elements:

45

3

56

7

**Sample Output 1:**

37

**Sample Input 2:**

Enter the size of an array:

0

**Sample Output 2:**

Invalid array size

Alternate Numbers Difference

Write a java program to read an array of integer elements. The program should find the difference between the alternate numbers in the array and find the index position of the smallest element with largest difference. If more than one pair has the same largest difference consider the first occurrence.

Note : When taking the difference take the absolute value i.e. neglecting the sign. Example : If it is 3-10=-7, consider it as 7.

If the array size is less than 3,Display “Invalid array size”.

**Sample Input1:**

6

4

3

2

10

8

6

**Sample Output1:**

1

Explanation :

Here alternate number difference means  
  
4-2, 3-10, 2-8, 10-6  
Neglect the sign So diff is 2,7,6,4  
Largest diff is 7 -----> 3-10, here the smallest number is 3 and its index is 1. Hence the output is 1.

**Sample Input2:**

7

7

6

2

2

3

1

8

**Sample Output2:**

2

**Sample Input3:**

**-1**

**Sample Output3:**

Invalid array size

Next Greatest number

Write a program to find the next greatest number that can be formed using the digits in the given input number.

If the given number cannot generate the next greatest number then print the input number itself

**Sample Input1:**

23

**Sample Output1:**

32

**Sample Input2:**

123

**Sample Output2:**

132

**Sample Input3:**

6251

**Sample Output3:**

6512

Mark Comparison

Joe and her friend got their marks for the IV semester. They were comparing the common scores which they have got.

Write a java program to find the common scores between two arrays and display the position of the matching scores from the first and second array.

If array size is not matching then display "Invalid array size".

If no elements are matching then display "No matching scores".

If any of the elements are negative then display "No Negative Elements".

**Input and output format:**

The first input corresponds to the size of the first array

The second input set corresponds to the elements of the first array

The third input corresponds to the size of the second array

The fourth input set corresponds to the elements of the second array

**Sample Input1:**

4

96

55

88

77

4

55

96

44

66

**Sample Output1:**

(1,2)(2,1)

**Sample Input2:**

4

43

54

67

23

5

**Sample Output2:**

Invalid array size

**Sample Input3:**

4

96

55

88

77

4

53

67

44

66

**Sample Output3:**

No matching scores

**Sample Input4:**

4

1

2

3

4

4

34

-1

**Sample Output4:**

No Negative Elements

Print the characters in descending order

Write a program to get the String an input from the user and display the alphabets in the String in descending order (Assume all the characters are given in lower case).

**Note :** In the String “programming” the characters m or r or g is repeated

**Sample Input 1:**

love

**Sample Output 1:**

vole

**Sample Input 2:**

programming

**Sample Output 2:**

rponmiga

Vowels in a FishBowl

Steffi plans a game to teach her students about vowels . There are 5 students .Steffi places 25 slip of papers in a fishbowl, where each slip contains a word.Each student has to take 5 slips and count the number of vowels in each slip and write it in a paper consecutively.

The Points are given as below

|  |  |
| --- | --- |
| No of Vowels | Points |
| 1 | 0 |
| 2 | 1 |
| 3 | 3 |
| 4 | 4 |
| 5 | 6 |
| More than 5 | 8 |

A student who gets the highest point is considered the winner. When no point is scored by anyone then display “No one has got any points”.

**Sample input 1**

mango basket ball auspicious kangaroo

precaution misbehavior battery cup screen

parasite hello good come education

invitation squeeze paper ant multiplication

COOPERATION DEMOCRACY CONGRATULATIONS YOU BYE

**Sample output 1**

1 1 0 8 4

6 6 1 0 1

4 1 1 1 6

6 4 1 0 8

8 3 8 1 0

1 14

2 14

3 13

4 19

5 20

The winner is student 5 with points 20

Least offer

Maya buys “N” no of products from a shop. The shop offers a different percentage of discount for each item. She wants to know the item that has the minimum discount offer, so that she can avoid buying that and save money.

[Input Format: The first input refers to the no of items; the second input is the item name, price and discount percentage separated by comma(,)]

**Sample Input 1:**

4

mobile,10000,20

shoe,5000,10

watch,6000,15

laptop,35000,5

**Sample Output 1:**

shoe

**Explanation**: the discount on mobile is 2000, the discount on shoe is 500, the discount on watch is 900 and the discount on laptop is 1750. So the discount on shoe is the minimum.

**Note**: More than one product can have the minimum discount , display those items separated by coma(,)

Ascending and descending order

Write a program to get the string as input from the user and remove the duplicates. Then, sort the first half of the string in the descending order and the second half in the ascending order. If the String length is 7 consider the first 4 as the first half and next 3 as the second half.

**Assumption:**  Only lowercase characters are allowed

**Sample Input 1:**

programming

**Sample Output 1:**

rpogaimn

**Explanation:**

1. programming -> progamin(After removing duplicates)

2. prog/amin ->rpog(Descending pattern) aimn(Ascending pattern)

3. 'rpogaimn' is the output for 'programming'

**Sample Input 2:**

cake

**Sample Output 2:**

caek

Mail Domain

ZeeZee Company provides an official id to its employees once they complete the pre-onboarding training. During the training, the zeezee company needs to send a mail to their personal ids. The company wants to send a mail to all the trainees. Help the company to find out the trainee’s personal mail id.

The employee’s official mail id will be employeename@zeezee.com. Find the mail domains apart from zeezee.com

[First input is the number of mail ids, the next inputs is the mail id]

**Sample Input1:**

5

[suvi@gmail.com](mailto:suvi@gmail.com)

[vivek@zeezee.com](mailto:vivek@zeezee.com)

[john@yahoo.com](mailto:john@yahoo.com)

[prem@zeezee.com](mailto:prem@zeezee.com)

[johan@gmail.com](mailto:johan@gmail.com)

**Sample Output1:**

[suvi@gmail.com](mailto:suvi@gmail.com)

[john@yahoo.com](mailto:john@yahoo.com)

[johan@gmail.com](mailto:johna@gmail.com)

**Sample Input2:**

5

[suvi@gmail.com](mailto:suvi@gmail.com)

[vivek@gmail.com](mailto:vivek@gmail.com)

[john@yahoo.com](mailto:john@yahoo.com)

[prem@yahoo.com](mailto:prem@yahoo.com)

[johan@gmail.com](mailto:johan@gmail.com)

**Sample Output2:**

[suvi@gmail.com](mailto:suvi@gmail.com)

[vivek@gmail.com](mailto:vivek@gmail.com)

[john@yahoo.com](mailto:john@yahoo.com)

[prem@yahoo.com](mailto:prem@yahoo.com)

[johan@gmail.com](mailto:johan@gmail.com)

**Sample Input2:**

5

[femina@zeezee.com](mailto:femina@zeezee.com)

[jaya@zeezee.com](mailto:jaya@zeezee.com)

[sri@zeezee.com](mailto:sri@zeezee.com)

[banu@zeezee.com](mailto:banu@zeezee.com)

[vijila@zeezee.com](mailto:vijila@zeezee.com)

**Sample Input2:**

No personal mail id

Count repeating words

In a given sentence, find the maximum repeated word and print the same.(Assume that all the characters are in lower case)

**Sample Input1:**

java is programming language and an object oriented language

**Sample Output1:**

language

**Sample Input2:**

suvi felt happy because suvi saw that the others were happy

**Sample Output2:**

suvi

happy

**Sample Input2:**he went out yesterday **Sample Output2:**  
No repetition of words

Sentence - Convert to upper and lower

Write a program to get a sentence as input. In the first word of the sentence keep the first character as it is and change the remaining to upper case, then in the second word keep the first two characters as it is and change the remaining to upper case. Continue this pattern for the remaining words too.

**Sample Input1:**

java is a programming language

**Sample Output1:**

jAVA is a progRAMMING languAGE

**Sample Input1:**

good programming practice

**Sample Output1:**

gOOD prOGRAMMING praCTICE

.

Count consecutive repeating characters

Write a program to count the consecutive repeating characters.

**Sample Input1:**

aaabbcbbbb

**Sample Output1:**

a3b2c1b4

**Sample Input2:**

aaaabbcbbbb

**Sample Output2:**

a4b2c1b4

**Sample Input3:**

ascbnt

**Sample Output2:**

ascbnt

Zig zag Array

Write a program to arrange the elements in the array so that it satisfies the below condition.

a<b>c<d>e<f…….

[Input format: The First input refers to the no of elements in the array and the next is the series of elements in the array]

**Sample Input 1:**

6

1

2

3

4

5

6

**Sample Output 1:**

1

3

2

5

4

6

**Sample Input 2:**

7

14

7

1

3

2

6

4

**Sample Output 2:**

7

14

1

3

2

6

4

Pass and Fail Count

Ram has passed in certain subjects and failed in a few. Write a program to count the no of subjects he passed in and the no of subjects he has failed in. Marks scored below 50 is considered as failed. If Ram has passed in all the subjects print "Ram passed in all subjects" and if failed print "Ram failed in all subjects".

Assume maximum size of array is 20,

**Sample Input 1:**  
Enter the no of subjects:  
6  
60  
70  
80  
90  
45  
49

**Sample Output 1:**

Ram passed in 4 subjects and failed in 2 subjects

**Sample Input 2:**  
Enter the no of subjects:

0

**Sample Output 2:**

Invalid input range

**Sample Input 3:**  
Enter the no of subjects:

-2

**Sample Output 3:**

Invalid input range

Search a Course

IIHT institution is offering a variety of courses to students. Students have a facility to check whether a particular course is available in the institution. Write a program to help the institution accomplish this task. If the number is less than or equal to zero display "Invalid Range".

Assume maximum number of courses is 20.

**Sample Input 1:**  
Enter no of course:  
5  
Enter course names:  
Java  
Oracle  
C++  
Mysql  
Dotnet  
Enter the course to be searched:  
C++  
 **Sample Output 1:**  
C++ course is available

**Sample Input 2:**  
Enter no of course:  
3  
Enter course names:  
Java  
Oracle  
Dotnet  
Enter the course to be searched:  
C++

**Sample Output 2:**  
C++ course is not available

**Sample Input 3:**  
Enter no of course:  
0  
**Sample Output 3:**  
Invalid Range

Average and Grade Calculation

Develop a smart application as Student Grade Calculator(SGC).

Create a class Student with following private attribute :

int id, String name, marks(integer array), float average and char grade. Include  getters and setters methods for all the attributes.

***public void calculateAvg()***- This method should calculate average and set average mark for the current student.

***public void findGrade()***- This method should set the grade based on the average calculated.

All marks should be greater than or equal to 50 to calculate the grade. If one or more marks is below 50 the grade should be set as 'F'. If all marks are 50 and above, set the grade based on below condition,

If the average is between 80 and 100 then, then return grade as 'O'. If the average is between 50 and 79 then return the grade as  'A' .If the average of the student is  less than 50 then return grade as 'F'. average and grade attribute should be set with the appropriate values.

(Note : Assume the number of subject is  greater than zero and  the mark for a subject is in the range of 0 - 100.)

Write a class StudentMain and test the application.

**Sample Input 1:**  
Enter the id:  
123  
Enter the name:  
Tom  
Enter the no of subjects:  
3  
Enter mark for subject 1:  
95  
Enter mark for subject 2:  
80  
Enter mark for subject 3:  
75

**Sample Output 1:**

Id:123  
Name:Tom  
Average:83.333333  
Grade:O

**Sample Input 2:**

Enter the id:  
123  
Enter the name:  
Tom  
Enter the no of subjects:

3  
Enter mark for subject 1:  
25  
Enter mark for subject 2:  
30  
Enter mark for subject 3:  
45

**Sample Output 2:**

Id:123  
Name:Tom  
Average:33.333333  
Grade:F

String - Find and replace the character (First occurrence)

Write a Java program to find a character from a sentence and replace it with another character. If the character is not found in the string print "character not found".

Note: Replace only the first occurrence.

**Sample input 1:**

Enter the string:

java programming

Enter the character to be searched:

a

Enter the character to replace:

o

**Sample output 1:**

jova programming

**Sample input 2:**

Enter the string:

java programming

Enter the character to be searched:

e

Enter the character to replace:

o

**Sample output 2:**

character not found

Sort the first and second half of an array

Anjali likes to play mathematical tricky games .She gets n numbers for an array. Help Anjali to write a Java program to sort the first half of the array in ascending order and the second half of the array in descending order. If the size of the array is 0 or lesser then display the message as "Array size should be greater than 0".

**Sample Input 1:**

Enter the size of an array:

5

Enter the elements:

89  
23  
56  
12  
99

**Sample Output 1:**

23

56

89

99

12

**Sample Input 2:**

Enter the size of an array:

0

**Sample Output 2:**Array size should be greater than 0

## Retail Shop

A Retail shop wants to maintain the product availability in their shop.

Create a Class Shop with the private attributes shopName, shopAddress, products(string array). Include Constructor to initialize value for this attributes and appropriate getter and setter method if needed.

Write the following method in the class:

public boolean checkProductAvailability(String productname) - this method should take the product name as argument and check whether that product is available in the shop or not (Product name to be searched is case insensitive). If the product is available, function should return true, else return false.

Write the main method to test the application.

Note: Always number of products should be greater than zero.

**Sample Input 1:**

Enter the shopname:  
TMD  
Enter the address:  
Chennai  
Enter number of products:

##### **4**

##### **Laptop**

##### **Camera**

##### **Pendrive**

##### **Mobile**

##### **Enter the product to be searched:**

Camera

**Sample Output 1:**

Product is available at TMD, Chennai.

**Sample Input 2:**  
Enter the shopname:  
TMD  
Enter the address:  
Chennai  
Enter no of products:  
4  
Laptop  
Camera  
Pendrive  
Mobile  
Enter the product to be searched:  
Telephone

**Sample Output 2:**

Product is not available at TMD, Chennai.

Palindrome

Astrologist believes that having a palindromic name is very auspicious . As we all know, a palindrome is a word that can be read the same way in either direction.There should not be a space or any special character in the word entered. If yes, display "Invalid Input". Write a Java program to determine whether a given word is a palindrome or not.

**Sample Input 1:**

Enter the word :

Malayalam

**Sample Output 1:**

Malayalam is a Palindrome

**Sample Input 2:**

Enter the word :

Apple

**Sample Output 2:**

Apple is not a Palindrome

**Sample Input 3:**

Enter the word :

no on

**Sample Output 3:**

Invalid Input

**Sample Input 4:**

Enter the word :

@nnn

**Sample Output 4:**

Invalid Input

Numerology

Write a program to find the numerological value for a given name.  
Note: Store the numerological number and the corresponding character in a 2-D array(2\*26). Always the given  name should be in capital case ,else the name is not valid. Check for the valid name,if the name is invalid print the message "Invalid name".There should not be any space in the name provided.  
For example:  
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
1 2 3 4 5 8 3 5 1 1 2 3 4 5 7 8 1 2 3 4 6 6 6 5 1 7

**Sample Input 1:**  
Enter your name:  
SUDHA

**Sample Output 1:**

Your numerology no is:19

**Sample Input 2:**  
Enter your name:  
kiran

**Sample Output 2:**

Invalid name

**Sample Input 3:**  
Enter your name:  
ANI34

**Sample Output 3:**

Invalid name

InitCap

Write a program to convert the first character of each word in a sentence to uppercase.

If the first character of each word in the given sentence is already in upper case, then print "First character of each word is already in uppercase".

**Sample Input 1:**  
Enter the String:  
Work hard to get what you like

**Sample Output 1:**

Work Hard To Get What You Like

**Sample Input 2:**  
Enter the String:  
Work Hard To Get What You Like

**Sample Output 2:**

First character of each word is already in uppercase

Array Compatiblilty

Two arrays are said to be compatible if they are of the same size and if the ith element in the first array is greater than or equal to the ith element in the second array for all i elements.If the array size is zero or lesser then display the message "Invalid array size".Write a Java program to find whether 2 arrays are compatible or not.If the arrays are compatible display the message as "Arrays are Compatible" ,if not then display the message as "Arrays are Not Compatible".

**Sample Input 1:**

Enter the size for First array:

5

Enter the elements for First array:

5

14

17

19

15

Enter the size for Second array:

5

Enter the elements for Second array:

2

5

9

15

7

**Sample Output 1:**

Arrays are Compatible

**Sample Input 2:**

Enter the size for First array:

3

Enter the elements for First array:

1

4

7

Enter the size for Second array:

5

Enter the elements for Second array:

2

5

9

5

7

**Sample Output 2:**

Arrays are Not Compatible

**Sample Input 3:**

Enter the size for First array:

-2

**Sample Output 3:**

Invalid array size

Sum of the maximum and the minimum element

Anjali gets n numbers in an array. Write a Java program to print the sum of the maximum and the minimum element in the array.If the size of an array is 0 or less print "Invalid Array Size".

**Sample Input 1:**

Enter the size of an array:

5

Enter the elements:

45

23

48

90

89

**Sample Output 1:**

113

**Sample Input 2:**

Enter the size of an array:

0

**Sample Output 2:**

Invalid Array Size

String Concatenation

The authority of XYZ gated residential colony wants its residents' name datum Should be stored in the following format - residents' name <space> his/her father's name. Write a program to concat the father's name to the residents' name. The name should be validated,on validation the name should contain only alphabets and space is allowed. If the name is not valid display the message "Invalid name". If valid string then convert  it to uppercase and print it..

[Use concat(String s) of the String class.]

**Sample Input 1:**

Inmate's name:Aron

Inmate's father's name:Terby

**Sample Output 1:**

ARON TERBY

**Sample Input 2:**

Inmate's name:Mary Anto

Inmate's father's name:Jose

**Sample Output 2:**

MARY ANTO JOSE

**Sample Input 3:**

Inmate's name:Dev12

Inmate's father's name:Terby

**Sample Output 3:**

Invalid name

Find Average Age

One of the least Insurance agencies recruited employees for their collection department. Now the HR needs a report as the average age of all the employees working in that department. Write a code to calculate the average age.

Implement a method "calculateAverage(int[] age)" to calculate the average age and return the result to the caller function.

Note : 

1. Age limit should be minimum of 28 years and maximum of 40 years.
2. Minimum of 2 employees is mandatory to calculate average age, if fails, the output should be "Please enter a valid employee count"
3. If any of the age is invalid, terminate the process and display "Invalid age encountered!"

**Refer the sample given for read and display the output.**

**Sample Input 1:**

Enter total no.of employees:

3

Enter the age for 3 employees:

30

31

32

**Sample Output 1:**

The average age is 31.00

**Sample Input 2:**

Enter total no.of employees:

2

Enter the age for 2 employees:

29

36

**Sample Output 2:**

The average age is 32.50

**Sample Input 3:**

Enter total no.of employees:

1

**Sample Output 3:**

Please enter a valid employee count

Login

Write a program to check whether the user is an authorized user or not. Create a class Login with the private attributes userName and password,write a method public boolean validate() in the Login class, this method should check whether the given userName is **john** and the password is **123abc** in that case return true else return false. Print "Valid user" or "Invalid user" based on the value returned from validate method.   
Note: Write a constructor in the Login to set userName and password. Include appropriate getter method  
  
**Sample Input 1:**  
Enter the username:

john  
Enter the password:

123abc  
 **Sample Output 1:**Valid user