**Problem Statement –**Write a program to calculate the fuel consumption of your truck.The program should ask the user to enter the quantity of diesel to fill up the tank and the distance covered till the tank goes dry.Calculate the fuel consumption and display it in the format (liters per 100 kilometers).

Convert the same result to the U.S. style of miles per gallon and display the result. If the quantity or distance is zero or negative display ” is an Invalid Input”.

[**Note:** The US approach of fuel consumption calculation (distance / fuel) is the inverse of the European approach (fuel / distance ). Also note that 1 kilometer is 0.6214 miles, and 1 liter is 0.2642 gallons.]

The result should be with two decimal place.To get two decimal place refer the below-mentioned print statement :

float cost=670.23;

System.out.printf(“You need a sum of Rs.%.2f to cover the trip”,cost);

**Sample Input 1:**

* Enter the no of liters to fill the tank

           20

* Enter the distance covered

           150

**Sample Output 1:**

* Liters/100KM

          13.33

* Miles/gallons

          17.64

**Explanation:**

* For 150 KM fuel consumption is 20 liters,
* Then for 100 KM fuel consumption would be (20/150)\*100=13.33,
* Distance is given in KM, we have to convert it to miles (150\*0.6214)=93.21,
* Fuel consumption is given in liters, we have to convert it to gallons (20\*0.2642)=5.284,
* Then find (miles/gallons)=(93.21/5.284)=17.64

**Sample Input 2:**

* Enter the no of liters to fill the tank

         -5

**Sample Output 2:**

* -5 is an Invalid Input

**Sample Input 3:**

* Enter the no of liters to fill the tank

           25

* Enter the distance covered

          -21

**Sample Output 3:**

* -21 is an Invalid Input

Question-2

**Problem Statement –**Vohra went to a movie with his friends in a Wave theatre and during  break time he bought pizzas, puffs and cool drinks. Consider   the following prices :

* Rs.100/pizza
* Rs.20/puffs
* Rs.10/cooldrink

Generate a bill for What Vohra has bought.

**Sample Input 1:**

* Enter the no of pizzas bought:10
* Enter the no of puffs bought:12
* Enter the no of cool drinks bought:5

**Sample Output 1:**

* Bill Details

No of pizzas:10

No of puffs:12

No of cooldrinks:5

Total price=1290

ENJOY THE SHOW!!!

Question-4

**Problem Statement –**FOE college wants to recognize the department which has succeeded in getting the maximum number of placements for this academic year. The departments that have participated in the recruitment drive are CSE,ECE, MECH. Help the college find the department getting maximum placements. Check for all the possible output given in the sample snapshot

**Note :** If any input is negative, the output should be “Input is Invalid”.  If all department has equal number of placements, the output should be “None of the department has got the highest placement”.

**Sample Input 1:**

* Enter the no of students placed in CSE:90
* Enter the no of students placed in ECE:45
* Enter the no of students placed in MECH:70

**Sample Output 1:**

* Highest placement

CSE

**Sample Input 2:**

* Enter the no of students placed in CSE:55
* Enter the no of students placed in ECE:85
* Enter the no of students placed in MECH:85

**Sample Output 2:**

* Highest placement

ECE

MECH

**Sample Input 3:**

* Enter the no of students placed in CSE:0
* Enter the no of students placed in ECE:0
* Enter the no of students placed in MECH:0

**Sample Output 3:**

* None of the department has got the highest placement

**Sample Input 4:**

* Enter the no of students placed in CSE:10
* Enter the no of students placed in ECE:-50
* Enter the no of students placed in MECH:40

**Sample Output 4:**

* Input is Invalid

Question-5

**Problem Statement  –**In a theater, there is a discount scheme announced where one gets a 10% discount on the total cost of tickets when there is a bulk booking of more than 20 tickets, and a discount of 2% on the total cost of tickets if a special coupon card is submitted. Develop a program to find the total cost as per the scheme. The cost of the k class ticket is Rs.75 and q class is Rs.150. Refreshments can also be opted by paying an additional of Rs. 50 per member.

**Hint: k and q and You have to book minimum of 5 tickets and maximum of 40 at a time. If fails display “Minimum of 5 and Maximum of 40 Tickets”.  If circle is given a value other than ‘k’ or ‘q’ the output should be “Invalid Input”.**

**The ticket cost should be printed exactly to two decimal places.**

**Sample Input 1:**

* Enter the no of ticket:35
* Do you want refreshment:y
* Do you have coupon code:y
* Enter the circle:k

**Sample Output 1:**

* Ticket cost:4065.25

**Sample Input 2:**

* Enter the no of ticket:1

**Sample Output 2:**

* Minimum of 5 and Maximum of 40 Tickets

Question-6

**Problem Statement –**Rhea Pandey’s teacher has asked her to prepare well for the lesson on seasons. When her teacher tells a month, she needs to say the season corresponding to that month. Write a program to solve the above task.

* Spring – March to May,
* Summer – June to August,
* Autumn – September to November and,
* Winter – December to February.

Month should be in the range 1 to 12.  If not the output should be “Invalid month”.

**Sample Input 1:**

* Enter the month:11

**Sample Output 1:**

* Season:Autumn

**Sample Input 2:**

* Enter the month:13

**Sample Output 2:**

* Invalid month

Question-7

**Problem Statement –**To speed up his composition of generating unpredictable rhythms, Blue Bandit wants the list of prime numbers available in a range of numbers.Can you help him out?

Write a java program to print all prime numbers in the interval [a,b] (a and b, both inclusive).

**Note**

* Input 1 should be lesser than Input 2. Both the inputs should be positive.
* Range must always be greater than zero.
* If any of the condition mentioned above fails, then display “Provide valid input”
* Use a minimum of one for loop and one while loop

**Sample Input 1:**

2

15

**Sample Output 1:**

2 3 5 7 11 13

**Sample Input 2:**

8

5

**Sample Output 2:**

* Provide valid input

### Question-8

**Problem Statement –**Goutam and  Tanul plays  by  telling numbers.  Goutam says a number to Tanul.  Tanul should first reverse the number and check if it is same as the original.  If yes,  Tanul should say “Palindrome”.  If not, he should say “Not a Palindrome”.  If the number is negative, print “Invalid Input”.  Help Tanul by writing a program.

**Sample Input 1 :**

21212

**Sample Output 1 :**

Palindrome

**Sample Input 2 :**

6186

**Sample Output 2 :**

Not a Palindrome

Question-9

XYZ Technologies is in the process of increment the salary of the employees.  This increment is done based on their salary and their performance appraisal rating.

1. If the appraisal rating is between 1 and 3, the increment is 10% of the salary.
2. If the appraisal rating is between 3.1 and 4, the increment is  25% of the salary.
3. If the appraisal rating is between 4.1 and 5, the increment is  30% of the salary.

Help them to do this,  by writing a program that displays the incremented salary. Write a class “IncrementCalculation.java” and write the main method in it.

**Note   :**   If either the salary is 0 or negative  (or) if the appraisal rating is not in the range 1 to 5 (inclusive), then the output should be “Invalid Input”.

**Sample Input 1 :**

* Enter the salary

8000

* Enter the Performance appraisal rating

3

**Sample Output  1 :**

8800

**Sample Input  2 :**

* Enter the salary

7500

* Enter the Performance appraisal rating

4.3

**Sample Output  2 :**

9750

**Sample Input  3 :**

* Enter the salary

-5000

* Enter the Performance appraisal rating

6

**Sample Output  3 :**

* Invalid Input

Question-10

**Problem Statement –**Chaman planned to choose a four digit lucky number for his car. His lucky numbers are 3,5 and 7. Help him find the number, whose sum is divisible by  3 or 5 or 7. Provide a valid car number, Fails to provide a valid input then display that number is not a valid car number.

**Note :** The input other than 4 digit positive number[includes negative and 0] is considered as invalid.

**Refer the samples, to read and display the data.**

**Sample Input 1:**

* Enter the car no:1234

**Sample Output 1:**

* Lucky Number

**Sample Input 2:**

* Enter the car no:1214

**Sample Output 2:**

* Sorry its not my lucky number

**Sample Input 3:**

* Enter the car no:14

**Sample Output 3:**

* 14 is not a valid car number

#### **Question-11**

**Problem Statement –**

IIHM 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

#### **Question-12**

**Problem Statement –**Mayuri buys “N” no of products from a shop. The shop offers a different percentage of discount on 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(,)]  
Assume the minimum discount offer is in the form of Integer.

**Note:**There can be more than one product with a minimum discount.

**Sample Input 1:**

4

mobile,10000,20

shoe,5000,10

watch,6000,15

laptop,35000,5

**Sample Output 1:**

shoe

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

**Sample Input 2:**

4

Mobile,5000,10

shoe,5000,10

WATCH,5000,10

Laptop,5000,10

**Sample Output 2:**

Mobile

shoe

WATCH

Laptop

#### **Question-13**

**Problem Statement –**Raj wants to know the maximum marks scored by him in each semester. The mark should be between 0 to 100 ,if goes beyond the range display “You have entered invalid mark.”

**Sample Input 1:**

* Enter no of semester:

3

* Enter no of subjects in 1 semester:

3

* Enter no of subjects in 2 semester:

4

* Enter no of subjects in 3 semester:

2

* Marks obtained in semester 1:

50  
60  
70

* Marks obtained in semester 2:

90  
98  
76  
67

* Marks obtained in semester 3:

89  
76

**Sample Output 1:**

* Maximum mark in 1 semester:70
* Maximum mark in 2 semester:98
* Maximum mark in 3 semester:89

**Sample Input 2:**

* Enter no of semester:

3

* Enter no of subjects in 1 semester:

3

* Enter no of subjects in 2 semester:

4

* Enter no of subjects in 3 semester:

2

* Marks obtained in semester 1:

55  
67  
98

* Marks obtained in semester 2:

67  
-98

**Sample Output 2:**

You have entered invalid mark.

#### **Question-14**

**Problem Statement –**Bela  teaches her daughter  to find the factors of a given number.  When she provides a number to her daughter, she should tell the factors of that number.  Help her to do this, by writing a program.  Write a class FindFactor.java and write the main method in it.  
**Note :**

* If the input provided is negative, ignore the sign and provide the output. If the input is zero
* If the input is zero the output should be “No Factors”.

**Sample Input 1 :**

54

**Sample Output 1 :**

1, 2, 3, 6, 9, 18, 27, 54

**Sample Input 2 :**

-1869

**Sample Output 2 :**

1, 3, 7, 21, 89, 267, 623, 1869

6\*6\*6\*6  
 5\*5\*5  
 4\*4  
 3  
 3  
 4\*4  
 5\*5\*5  
 6\*6\*6\*6