

TCS CODING QUESTIONS

1. A City Bus is a Ring Route Bus which runs in circular fashion. That is, Bus once starts at the Source Bus Stop, halts at each Bus Stop in its Route and at the end it reaches the Source Bus Stop again.

If there are n number of Stops and if the bus starts at Bus Stop 1, then after nth Bus Stop, the next stop in the Route will be Bus Stop number 1 always.

If there are n stops, there will be n paths. One path connects two stops. Distances (in meters) for all paths in Ring Route is given in array Path[] as given below:

Path = [800, 600, 750, 900, 1400, 1200, 1100, 1500]

Fare is determined based on the distance covered from source to destination stop as Distance between Input Source and Destination Stops can be measured by looking at values in array Path[] and fare can be calculated as per following criteria:

- If d = 1000 metres, then fare = 5 INR
- (When calculating fare for others, the calculated fare containing any fraction value should be ceiled. For example, for distance 900m when fare initially calculated is 4.5 which must be ceiled to 5)

Path is circular in function. Value at each index indicates distance till current stop from the previous one. And each index position can be mapped with values at same index in BusStops [] array, which is a string array holding abbreviation of names for all stops as-

“THANERAILWAYSTN” = “TH”, “GAONDEVI” = “GA”, “ICEFACTROY” = “IC”, “HARINIWASCIRCLE” = “HA”, “TEENHATHNAKA” = “TE”, “LUISWADI” = “LU”, “NITINCOMPANYJUNCTION” = “NI”, “CADBURRYJUNCTION” = “CA”

Given, n=8, where n is number of total BusStops.

BusStops = [“TH”, “GA”, “IC”, “HA”, “TE”, “LU”, “NI”, “CA”]

Write a code with function getFare(String Source, String Destination) which take Input as source and destination stops (in the format containing first two characters of the Name of the Bus Stop) and calculate and return travel fare.

Example 1:

Input Values

ca

Ca

Output Values

INVALID OUTPUT

Example 2:

Input Values

NI

HA

Output Values

23.0 INR

Note: Input and Output should be in format given in example.

Input should not be case sensitive and output should be in the format INR

2. There are total n number of Monkeys sitting on the branches of a huge Tree. As travelers offer Bananas and Peanuts, the Monkeys jump down the Tree. If every Monkey can eat k Bananas and j Peanuts. If total m number of Bananas and p number of Peanuts are offered by travelers, calculate how many Monkeys remain on the Tree after some of them jumped down to eat.

At a time one Monkey gets down and finishes eating and go to the other side of the road. The Monkey who climbed down does not climb up again after eating until the other Monkeys finish eating.

Monkey can either eat k Bananas or j Peanuts. If for last Monkey there are less than k Bananas left on the ground or less than j Peanuts left on the ground, only that Monkey can eat Bananas($\leq k$) along with the Peanuts($\leq j$).

Write code to take inputs as n , m , p , k , j and return the number of Monkeys left on the Tree.

Where, n = Total no of Monkeys

k = Number of eatable Bananas by Single Monkey (Monkey that jumped down last may get less than k Bananas)

j = Number of eatable Peanuts by single Monkey (Monkey that jumped down last may get less than j Peanuts)

m = Total number of Bananas

p = Total number of Peanuts

Remember that the Monkeys always eat Bananas and Peanuts, so there is no possibility of k and j having a value zero

Example 1:

Input Values

20

2

3

12

12

Output Values

Number of Monkeys left on the tree:10

Note: Kindly follow the order of inputs as n, k, j, m, p as given in the above example.

And output must include the same format as in above example (Number of Monkeys left on the Tree:)

For any wrong input display INVALID INPUT

3. Chain Marketing Organization has has a scheme for income generation, through which its members generate income for themselves. The scheme is such that suppose A joins the scheme and makes R and V to join this scheme then A is Parent Member of R and V who are child Members. When any member joins the scheme then the parent gets total commission of 10% from each of its child members.

Child members receive commission of 5% respectively. If a Parent member does not have any member joined under him, then he gets commission of 5%.

Take name of the members joining the scheme as input.

Display how many members joined the scheme including parent member. Calculate the Total commission gained by each members in the scheme. The fixed amount for joining the scheme is Rs.5000 on which commission will be generated

SchemeAmount = 5000

Example 1: When there are more than one child members

Input : (Do not give input prompts. Accept values as follows.)

Amit //Enter parent Member as this

Y //Enter Y if Parent member has child members otherwise enter N

Rajesh, Virat //Enter names of child members of Amit in comma separated

Output: (Final Output must be in format given below.)

TOTAL MEMBERS:3

COMMISSION DETAILS

Amit: 1000 INR

Rajesh :250 INR

Virat: 250 INR

Example 2: When there is only one child member in the hierarchy

Input :

Amit

Y

Rajesh

Output:

Total Members: 2

Commission Details

Amit: 500 INR

Rajesh: 250 INR

4. **FULLY AUTOMATIC VENDING MACHINE** – dispenses your cuppa on just press of button. A vending machine can serve range of products as follows:

Coffee

1. Espresso Coffee
2. Cappuccino Coffee
3. Latte Coffee

Tea

1. Plain Tea
2. Assam Tea
3. Ginger Tea
4. Cardamom Tea
5. Masala Tea

6. Lemon Tea
7. Green Tea
8. Organic Darjeeling Tea

Soups

1. Hot and Sour Soup
2. Veg Corn Soup
3. Tomato Soup
4. Spicy Tomato Soup

Beverages

1. Hot Chocolate Drink
2. Badam Drink
3. Badam-Pista Drink

Write a program to take input for main menu & sub menu and display the name of sub menu selected in the following format (enter the first letter to select main menu):

Welcome to CCD

Enjoy your

Example 1:

Input:

c

1

Output

Welcome to CCD!

Enjoy your Espresso Coffee!

Example 2:

Input:

t

9

Output

INVALID INPUT

5. A doctor has a clinic where he serves his patients. The doctor's consultation fees are different for different groups of patients depending on their age. If the patient's age is below 17, fees is 200 INR. If the patient's age is between 17 and 40, fees is 400 INR. If patient's age is above 40, fees is 300 INR. Write a code to calculate earnings in a day for which one array/List of values representing age of patients visited on that day is passed as input.

Note:

- Age should not be zero or less than zero or above 120
- Doctor consults a maximum of 20 patients a day
- Enter age value (press Enter without a value to stop):

Example 1:

Input

20
30
40
50
2
3
14

Output

Total Income 2000 INR

Note: Input and Output Format should be same as given in the above example.

For any wrong input display INVALID INPUT

Output Format

Total Income 2000 INR

6. Write a code to check whether no is prime or not. Condition use function check() to find whether entered no is positive or negative ,if negative then enter the no, And if yes pas no as a parameter to prime() and check whether no is prime or not?

- **Whether the number is positive or not, if it is negative then print the message “please enter the positive number”**
- **It is positive then call the function prime and check whether the take positive number is prime or not.**

7. Find the 15th term of the series?

0,0,7,6,14,12,21,18, 28

8. Consider the below series :

0, 0, 2, 1, 4, 2, 6, 3, 8, 4, 10, 5, 12, 6, 14, 7, 16, 8

This series is a mixture of 2 series all the odd terms in this series form even numbers in ascending order and every even terms is derived from the previous term using the formula $(x/2)$

Write a program to find the nth term in this series.

The value n is a positive integer that should be read from STDIN. The n th term that is calculated by the program should be written to STDOUT. Other than the value of the n th term, no other characters /strings or message should be written to STDOUT.

For example, if $n=10$, the 10th term in the series is to be derived from the 9th term in the series. The 9th term is 8, so the 10th term is $(8/2)=4$. Only the value 4 should be printed to STDOUT.

You can assume that n will not exceed 20,000.

9. The program will receive 3 English words as inputs from STDIN

These three words will be read one at a time, in three separate lines

The first word should be changed like all vowels should be replaced by %

The second word should be changed like all consonants should be replaced by #

The third word should be changed like all characters should be converted to upper case

Then concatenate the three words and print them

Other than these concatenated words, no other characters/string should or message should be written to STDOUT

For example, if you print "how are you", then output should be "h%wa#eYOU".

You can assume that input of each word will not exceed more than 5 characters

10. Consider the below series :

0, 0, 2, 1, 4, 2, 6, 3, 8, 4, 10, 5, 12, 6, 14, 7, 16, 8

This series is a mixture of 2 series. All the odd terms in this series form even numbers in ascending order, and every even term is derived from the previous term using the formula $(x/2)$

Write a program to find the n th term in this series.

The value n is a positive integer that should be read from STDIN. The n th term that is calculated by the program should be written to STDOUT. Other than the value of the n th term, no other characters /strings or message should be written to STDOUT.

For example, if $n=10$, the 10th term in the series is to be derived from the 9th term in the series. The 9th term is 8, so the 10th term is $(8/2)=4$. Only the value 4 should be printed to STDOUT.

You can assume that n will not exceed 20,000.