

Question no 1:

You work at a secret agency and your job is to protect the communication between top secret agents by encrypting their messages.

You are given a single string message as input (take input from the user). The length of the message is 20 characters. You need to encrypt the message by increasing the ASCII value of each vowel character by 3 and decreasing the ASCII value of each consonant character by 2. Write a program to perform this encryption and display the original and encrypted message. Also, note that if a message contains the substring WAR (in capital case) then you do not need to encrypt the message and should only display the original message.

Question no 2:

Write a function to compute the distance between two points and use it to develop another function that will compute the area of the triangle whose vertices are A(x1, y1), B(x2, y2), and C(x3, y3).

Use these functions to develop a function which returns a value 1 if the point (x, y) lies inside the triangle ABC, otherwise a value 0.

Question no 3:

You have been given a project of ICHIRAKU RAMEN's food ordering system. There are three categories of menu available at ICHIRAKU. A list of menu items that belong to the menu includes its name and price.

Main Course	Price
Plain Ramen	1.50
Ichiraku Special	2.00
Side Dish	
Egg Topping	1.00
Chicken Curry	3.50
Drink	
Tea	0.50
Coffee	0.50

ICHIRAKU needs you to design an application which takes order from the customer and allow the manager to keep track of the sales closing time. All the prices are fixed, and the operator of the application just takes in the quantity of food ordered. After the selection of the dishes, bill for the customer will be calculated.

At the closing time, the ICHIRAKU's manager may want to check the summary of the sales. The sale summary is used to perform the following task:

Get the number of sale for each item per day.
Calculate the total amount for each item per day.

Requirement

You should generate a structure with member's price and item name.

Declare an array structure variable, which allow you to take input from the user.

Create a function name calculateItemPrice() which will calculate the price of each item and shows the total price.

Create a function name summary() which will display the summary of sale items and the total amount.

Question no 4:

Dexter is in his lab trying to do something with arrays, he make a program and then go for buying a hardware. His sister Dee Dee came in lab, modified the program which creates some errors, now she wants you to help her fixing the program before Dexter arrive.

```
void DoSomething(int data,
int out, int size, int
count, intcountSize, int
vall, int& val2 )
{
int i;
for( i = 0; i<size; i++)
count[data[ i ]] =
count[data[ i ]]+1;

for ( i = 1; i <countSize;
i++)
count[ i ] = count[ i ] +
count[i-1];

for ( i = 0; i<size; i++)
{
int temp = count[data[ i
]]-1;
out[temp] = data[ i ];
count[data[ i ]] =
count[data[ i ]]-1;
}
val2 = out[size-1];
vall= out[0];
}
voidOutputArray(intarr,int
size)
```

```
{
int i;
for ( i=0;i<size;++i)
printf("%d ",arr[i]);
printf("\n");

}

void main()
{
int numbers[7] = {1, 4, 1,
2, 7, 5, 2}, out[7],
count[10] = {0},
val1=99,val2=99;
DoSomething(numbers, out,
7, count, 10, val1, val2
);
OutputArray(numbers, 7);
OutputArray(out,7);
OutputArray(count,10);
printf("val1 is %d and val2
is %d ",val1,val2);
return;
}
```