

Question no 1:

Euclid, A Greek mathematician, came up with the concept of GCD in the modern era where species only understand programming and nothing else. He's the only one who's not good at programming. So, you his friend is ready to help him make a program that will calculate the greatest common divisor of two integers given by the user. The GCD of two numbers is the largest integer by which both of these numbers are divisible.

Question no 2:

Fatima wants to write a function that receives a string of unknown size. She do not want to declare the array. This string contains a sentence, which is a sequence of words separated by spaces. However, some words are separated by more than one space. Function should make the string "**compact**" by removing all extra spaces and leaving only one space behind. At the end of the function the compacted string should still be a proper null terminated string. The function should return the number of spaces it removed. This has to be done in place, so she **cannot use any extra array**. She also can't use any built-in functions. Also, string handling functions such as character insertion, deletion, string length etc. are NOT AVAILABLE. Help Fatima in creating the program.

Sample example:

If the original string is:

Exam is so easy !

Then the same string should change to

Exam is so easy!

29 spaces removed

Question no 3:

SalesWrap goods supplier wants an inventory management system that keep track of each product in the warehouse. They hire you and ask to create a program that input each item with the following attributes:

- Product name
- Category
- code
- Vendor
- Manufacture date (must be a composite date type)
- Expiration date (must be a composite date type)
- Receiving date (must be a composite date type)
- Quantity
- price

The program should be able to

- Add a product
If a product with the same name already exists, then do not allow adding a new one. Having two products with the same name is not allowed. While adding a product you should allow the user to either cancel the operation or re-enter the name again.
- Delete a product
Implement delete a product by name function.
- Display all product
Update a product may include updating the price or quantity the function must ask for both.
- List products according to category
Display all products under a certain category.

Question no 4:

Nobita's teacher ask him to make a program which input 3 numbers and elements of an array using functions and perform some operations on it but all should be done by reference. He tries his hard and made a program but as he is not good in programming his program has many errors, your task is to help him out by fixing all the errors before the time elapse.

```
int confuse1(int b,int
&a,int &c)
{
int array1[6] = {1,2,3};
int abc =
confuse2(a,array1,c,b,3);
c = c*10;
b = a +c;
for (int i = 0; i<6; i++)
printf("%d ",array1[i]);
return abc;
cout<<"\nleaving
confuse1\n";
}
void inputNums(int a, int
b, int c)
{
printf("Input a b and c");
scanf("%d %d %d",a,b,c);
}

void main ()
{
int a=-1, b=1, c= 2;
inputNums(a,b,c);
int d = confuse(a,b,c);
```

```

printf("\n The result is %d
",d);
printf("\n %d %d
%d\n",a,b,c);
getch();
}
int confuse2(int &a,int
e[],int b,int &c, int size)
{
inputArray(e, size);
a = e[5] +e[4];
b = b + e[3];
c = c*c;
return (a*b);
}
void inputArray(int a[],
int size)
{
printf("Input %d
elements",size);
for(int i = 3;
i<size*2;i++)
scanf("%d",&a[i]);
}

```