

# Questions

Q102  
Write a program to check the entered user name is valid or not. Get both the inputs from the user.

Sample Input:  
Enter the user name: saveetha@789  
Reenter the user name: saveetha@123

Sample Output:  
User name is invalid

## Test Cases

1. Student@123; Student@123
2. 123456; 12345
3. @987654; @987654
4. student\_12; student\_12

1

Run

Save

```

1 #include <stdio.h>
2 #include <ctype.h>
3 #include <string.h>
4 int main()
5 {
6     char username[71];
7     int i,valid;
8     printf("Enter a username");
9     scanf("%s",username);
10    if(strlen(username)<1||strlen(username)>20)
11    {
12        valid=0;
13    }
14    else
15    {
16        valid=1;
17        for(i=0;username[i]!='\0';i++)
18        {
19            if(!isalnum(username[i])||username[i]!='_')
20            {
21                valid=0;
22                break;
23            }
24        }
25        if(valid)
26        {
27            printf("The username is valid");
28        }
29        else
30        {
31            printf("The username is invalid",username);
32        }
33        return 0;
34    }
35 }

```

saveetha@789

saveetha@123

enter a username

The username is invalid

# Questions

Q1020

Find the factorial of n!

Sample Input:  
n = 5  
Sample Output:  
5 Factorial = 28

## Test Cases

1. N = 9
2. N = -5
3. N = 1
4. N = 0
5. N = 16

1

Run

Save

```

1 #include <stdio.h>
2 int main()
3 {
4     int i,fact=1,num;
5     printf("Enter the number");
6     scanf("%d",&num);
7     for(i=1;i<=num;i++)
8     {
9         fact=fact*i;
10    }
11    printf("The factorial of %d is %d",num,fact);
12    return 0;
13 }

```

5

enter the number

The factorial of 5 is 120

Questions  
Q8258  
Find the Mean, Median, Mode of the array of numbers?

Sample Input:  
Array of elements = {10, 18, 27, 34, 23, 21, 10}

Sample Output:  
Mean = 20  
Median = 18  
Mode = 10

- Test Cases
- 1. Array of elements = {20, 20, 17, 20, 31, 11, 20}
  - 2. Array of elements = {1, 1, 1, 2, 2, 1, 1, 2, 1, 1, 1}
  - 3. Array of elements = {9, 100, 100, 100, 100, 100, 100, 100, 100, 100}
  - 4. Array of elements = {100, 100, 100, 100, 100, 100, 100, 100, 100, 100}
  - 5. Array of elements = {100, 100, 100, 100, 100, 100, 100, 100, 100, 100}

```
1. #include <stdio.h>
2. #include <stdlib.h>
3. //Function to find the mean of the array//
4. float find_mean(int arr[],int n)
5. {
6.     float sum=0;
7.     for(int i=0;i<n;i++)
8.     {
9.         sum+=arr[i];
10.    }
11.    return sum/n;
12. }
13. //func to find the median of an array//
14. float find_median(int arr[],int n)
15. {
16.     for(int i=0;i<n;i++)
17.     {
18.         for(int j=i+1;j<n;j++)
19.         {
20.             if(arr[i]>arr[j])
21.             {
22.                 int temp=arr[i];
23.                 arr[i]=arr[j];
24.                 arr[j]=temp;
25.             }
26.         }
27.     }
28.     //find the middle elements//
29.     if(n%2==0)
30.     {
31.         return (float)(arr[(n/2)-1]+arr[(n/2)]/2);
32.     }
33.     else
34.     {
35.         return arr[n/2];
36.     }
37. }
38. //finding the mode//
39. int find_mode(int arr[],int n)
40. {
41.     int max_count=0;
42.     int mode=0;
43.     for(int i=0;i<n;i++)
44.     {
45.         int count=0;
46.         for(int j=0;j<n;j++)
47.         {
48.             if(arr[i]==arr[j])
49.             {
50.                 count++;
51.             }
52.         }
53.     }
```

Your Input Goes Here...!!!

mean=20.00  
median=18.00  
mode=10

Questions  
Q8261  
Write a program to print the following pattern

Sample Input:  
Enter the Character to be printed: S  
No. Number of line printed: 5

S S  
S S S

Test Cases

```
1. #include <stdio.h>
2. int main()
3. {
4.     int i,j,k;
5.     char ch;
6.     scanf("%c",&ch);
7.     for(i=0;i<5;i++)
8.     {
9.         for(j=0;j<5;j++)
10.        {
11.            printf("%c ",ch);
12.        }
13.        printf("\n");
14.    }
15.    return 0;
16. }
```

3

S is a perfect number

**SIMATS** Saveetha School of Engineering

**Questions**  
Q1243  
Find the year of the given date is leap year or not.

**Sample Input:**  
Enter year: 861212047

**Sample Output:**  
Given year is Not leap Year

**Test Cases**

Sr	Test Case	Expected Output
1	86121212 87	2007
2	1212121210	2004 is a leap year
3	1212121210	
4	8612121200	
5	8612121200	

```

1 #include <stdio.h>
2 int main()
3 {
4     int year;
5     scanf("%d",&year);
6     if(year%4==0 && year%100!=0 || year%400==0)
7     {
8         printf("This is a leap year",year);
9     }
10    else
11    {
12        printf("This is not a leap year",year);
13    }
14    return 0;
15 }

```

**SIMATS** Saveetha School of Engineering

**Questions**  
Q1244  
Write a program to print the given number is Perfect number or not.

**Sample Input:**  
Enter number: 6

**Sample Output:**  
6 is a Perfect Number

**Test Cases**

Sr	Test Case	Expected Output
1	6	28
2	28	28 is a perfect number
3	245	
4	361	
5	361	

```

1 #include <stdio.h>
2 int main()
3 {
4     int i,number,sum=0;
5     scanf("%d",&number);
6     for(i=1;i<number;i++)
7     {
8         if(number%i==0)
9         {
10            sum+=i;
11        }
12    }
13    if(sum==number)
14    {
15        printf("This is a perfect number",number);
16    }
17    else
18    {
19        printf("This is not a perfect number",number);
20    }
21    return 0;
22 }

```

**SIMATS** Saveetha School of Engineering

**Questions**  
Q1245  
Find the number of factors for the given number.

**Sample Input:**  
Enter number: 100

**Sample Output:**  
Number of factors is 9

**Test Cases**

Sr	Test Case	Expected Output
1	100	100
2	100	The number of factors of 100 is 9
3	100	
4	10000	
5	0	

```

1 #include <stdio.h>
2 int main()
3 {
4     int num,i,factors=0;
5     scanf("%d",&num);
6     for(i=1;i<=num;i++)
7     {
8         if(num%i==0)
9         {
10            factors++;
11        }
12    }
13    printf("The number of factors of %d is %d",num,factors);
14    return 0;
15 }

```

**MATS** Saveetha School of Engineering

Ques: Write a program to print the number of vowels in the given statement?

Ex: Saveetha School of Engineering

Ans: 12

Test Cases

1. India is my country.
2. All are my brothers and sisters.
3. My city is Chennai.
4. My dog is a dog.
5. Education.

```

1 #include <stdio.h>
2 #include <string.h>
3 int main()
4 {
5     char str[100];
6     printf("Enter a string:");
7     fgets(str, sizeof(str), stdin);
8     int count = 0;
9     for(int i = 0; i < strlen(str); i++)
10     {
11         if(str[i] == 'a' || str[i] == 'e' || str[i] == 'i' || str[i] == 'o' || str[i] == 'u' || str[i] == 'A' || str[i] == 'E' || str[i] == 'I' || str[i] == 'O' || str[i] == 'U')
12             count++;
13     }
14     printf("No. of vowels in a string is %d", count);
15 }

```

saveetha school of engineering

no of vowels in a string is 12

**SIMATS** Saveetha School of Engineering

Ques: Write a program to print hollow square symbol pattern?

Ex: The typical row user.

Input: 4

Output:

```

4 x x x
x   x
x   x
x x x

```

Test Cases

1. 4
2. 5
3. 6
4. 7
5. 8

```

1 #include <stdio.h>
2 int main()
3 {
4     int n;
5     scanf("%d", &n);
6     while(n > 0)
7     {
8         printf("%d\n", n);
9         for(int i = 0; i < n; i++)
10         {
11             printf("x");
12             if(i < n-1)
13                 printf(" ");
14             if(i == 0 || i == n-1)
15                 printf("x\n");
16             else
17                 printf("\n");
18         }
19         n--;
20     }
21     return 0;
22 }

```

4

4 x x x  
x x  
x x  
x x x

**SIMATS** Saveetha School of Engineering

Ques: Write a program to print consonants and vowels separately in the given word.

Ex: Saveetha School of Engineering

Ans: Saveetha School of Engineering

Test Cases

1. Test
2. Program
3. Input
4. Output
5. Error

```

1 #include <stdio.h>
2 #include <string.h>
3 int main()
4 {
5     char str[100];
6     printf("Enter a word:");
7     fgets(str, sizeof(str), stdin);
8     int count = 0;
9     for(int i = 0; i < strlen(str); i++)
10     {
11         if(str[i] == 'a' || str[i] == 'e' || str[i] == 'i' || str[i] == 'o' || str[i] == 'u' || str[i] == 'A' || str[i] == 'E' || str[i] == 'I' || str[i] == 'O' || str[i] == 'U')
12             count++;
13         else
14             printf("%c", str[i]);
15     }
16     printf("\n");
17     printf("No. of vowels in a string is %d", count);
18     return 0;
19 }

```

engineering

enter the string  
saveetha school  
consonants engineering