

Programming with C and C++

CSC-101 (Lecture 18)

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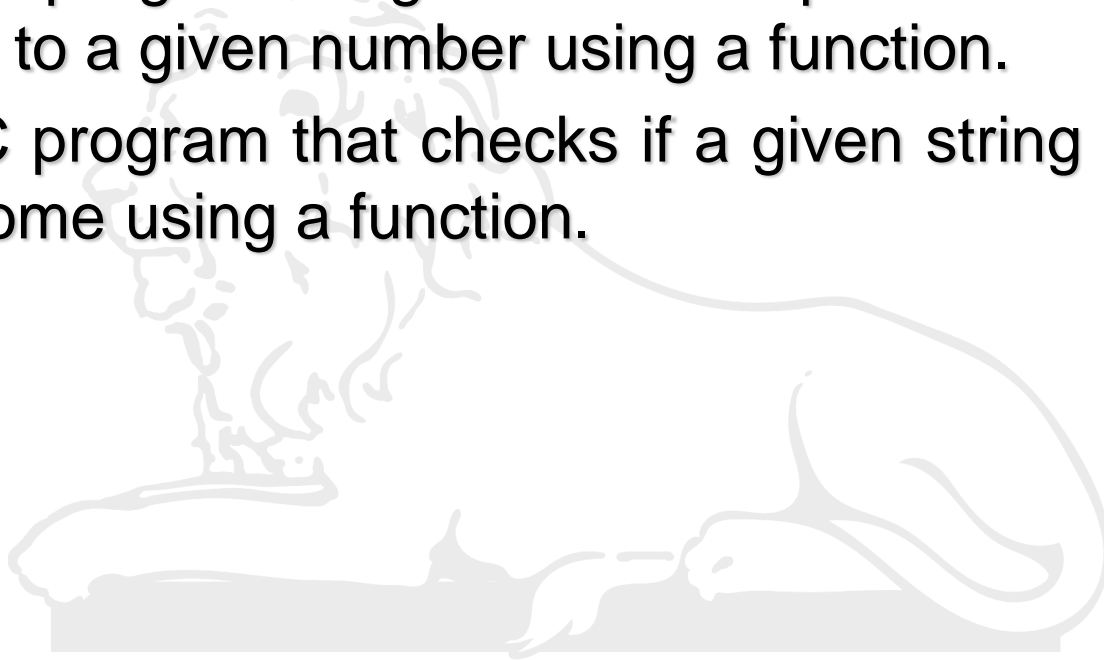
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Some Problems using Function



- ▶ Write a C program that checks whether a given number is prime or not using a function.
- ▶ Write a C program to generate and print the Hemachandra series up to a given number using a function.
- ▶ Write a C program that checks if a given string or number is a palindrome using a function.





```
1  #include <stdio.h>
2  #include <stdbool.h>
3
4  // Function to check if a number is prime
5  bool isPrime(int num) {
6      if (num <= 1)
7          return false;
8
9      for (int i = 2; i * i <= num; i++) {
10         if (num % i == 0)
11             return false;
12     }
13
14     return true;
15 }
16
```

<https://ideone.com/ojEQiT>



```
17 int main() {  
18     int number;  
19     printf("Enter a number: ");  
20     scanf("%d", &number);  
21  
22     if (isPrime(number))  
23         printf("%d is a prime number.\n", number);  
24     else  
25         printf("%d is not a prime number.\n", number);  
26  
27     return 0;  
28 }  
29
```

 stdin

43

 stdout

Success #stdin #stdout 0s 5352KB

Enter a number: 1729 is not a prime number.

Enter a number: 43 is a prime number.

Arrays and functions



```
1  #include <stdio.h>
2
3  // Function to perform sequential search in an array
4  int sequentialSearch(int arr[], int size, int target) {
5      for (int i = 0; i < size; i++) {
6          if (arr[i] == target) {
7              return i; // Return the index where the target is found
8          }
9      }
10     return -1; // Return -1 if the target is not found
11 }
12
13 int main() {
14     int arr[] = {10, 23, 45, 6, 17, 38, 52};
15     int size = sizeof(arr) / sizeof(arr[0]);
16     int target;
17 }
```

```
17
18     printf("Enter the number to search for: ");
19     scanf("%d", &target);
20
21     int result = sequentialSearch(arr, size, target);
22
23     if (result != -1) {
24         printf("The number %d was found at index %d.\n", target, result);
25     } else {
26         printf("The number %d was not found in the array.\n", target);
27     }
28
29     return 0;
30 }
```

Success #stdin #stdout 0.01s 5392KB

Enter the number to search for: The number 17 was found at index 4.

<https://ideone.com/Om5Yey>

Recursion in C



</> source code

```
1  #include<stdio.h>
2
3  long factorial(int n)
4  {
5      if (n == 0)
6          return 1;
7      else
8          return(n * factorial(n-1));
9  }
10
```

<https://ideone.com/mwoTF6>



```
11 void main()
12 {
13     int number;
14     long fact;
15     printf("Enter a number: ");
16     scanf("%d", &number);
17
18     fact = factorial(number);
19     printf("Factorial of %d is %ld\n", number, fact);
20     return 0;
21 }
22
```

Success #stdin #stdout 0s 5392KB

Enter a number: Factorial of 7 is 5040

</> source code

```
1  #include<stdio.h>
2  int fibonacci(int);
3  void main ()
4  {
5      int n,f;
6      printf("Enter the value of n?");
7      scanf("%d",&n);
8      f = fibonacci(n);
9      printf("%d",f);
10 }
```

<https://ideone.com/irn1v9>

```
11 int fibonacci (int n)
12 {
13     if (n==0)
14     {
15         return 0;
16     }
17     else if (n == 1)
18     {
19         return 1;
20     }
21     else
22     {
23         return fibonacci(n-1)+fibonacci(n-2);
24     }
25 }
26
```

 stdin

10

 stdout

Enter the value of n?55

</> source code

```
1  #include <stdio.h>
2  void easy(int n)
3  {if (n<1) return;
4    easy(n-2);
5    printf("%d",n);
6    easy(n-3);
7    printf("%d",n);
8  }
9  int main(void) {
10     // your code goes here
11     easy(5);
12     return 0;
13 }
14
```

<https://ideone.com/SPmToe>

Success #stdin #stdout 0s 5520KB
11335225

```
1  #include <stdio.h>
2  void easy(int n)
3  {if (n<1) return;
4    printf("%d",n);
5    easy(n-2);
6    printf("%d",n);
7    easy(n-3);
8    printf("%d",n);
9  }
10 int main(void) {
11     // your code goes here
12     easy(5);
13     return 0;
14 }
```

<https://ideone.com/ivqimv>

stdout

531113352225

```
1  #include <stdio.h>
2  void findoutput(int num)
3  {
4      if (num<1)
5          return;
6      findoutput(num/2);
7      printf("%d",num%2);
8  }
9  int main(void) {
10     // your code goes here
11     findoutput(20);
12     return 0;
13 }
14 https://ideone.com/xfXdIE
```

 stdout

10100

