

Softwarica

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Programming

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Project Documentation: C Programming Exercises


1. Introduction

This document provides a comprehensive overview of various C programming exercises. Each section includes the purpose of the program, the code, and instructions for compiling and running the program.

2. Programs

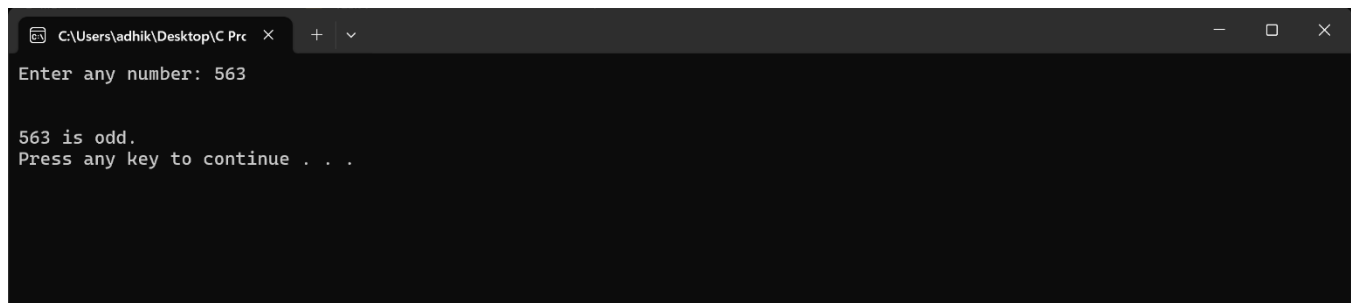
2.1 Check if a Number is Even or Odd

Code:



```
1  #include <stdio.h>
2  #include <stdlib.h>
3  int isEven(int num)
4  {
5      return num % 2 == 0 ? 1 : 0;
6  }
7
8  int main()
9  {
10     int number;
11     printf("Enter any number: ");
12     scanf("%d", &number);
13
14     if (isEven(number))
15     {
16         printf("\n%d is even.\n", number);
17     }
18     else
19     {
20         printf("\n%d is odd.\n", number);
21     }
22     system("pause");
23     return 0;
24 }
25
```

Output:

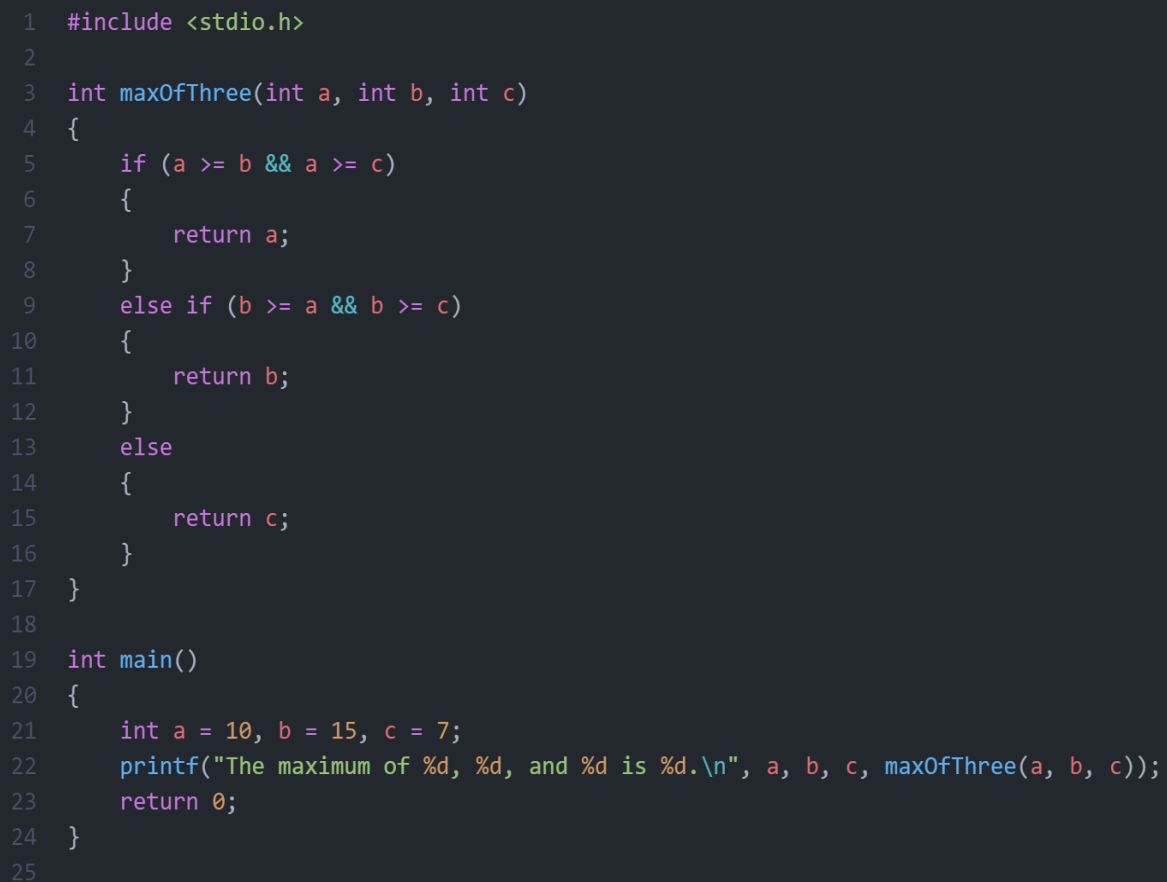


```
C:\Users\adhik\Desktop\C Prc x + v
Enter any number: 563

563 is odd.
Press any key to continue . . .
```

2.2 Maximum of Three Numbers

Code:



```
1  #include <stdio.h>
2
3  int maxOfThree(int a, int b, int c)
4  {
5      if (a >= b && a >= c)
6      {
7          return a;
8      }
9      else if (b >= a && b >= c)
10     {
11         return b;
12     }
13     else
14     {
15         return c;
16     }
17 }
18
19 int main()
20 {
21     int a = 10, b = 15, c = 7;
22     printf("The maximum of %d, %d, and %d is %d.\n", a, b, c, maxOfThree(a, b, c));
23     return 0;
24 }
25
```

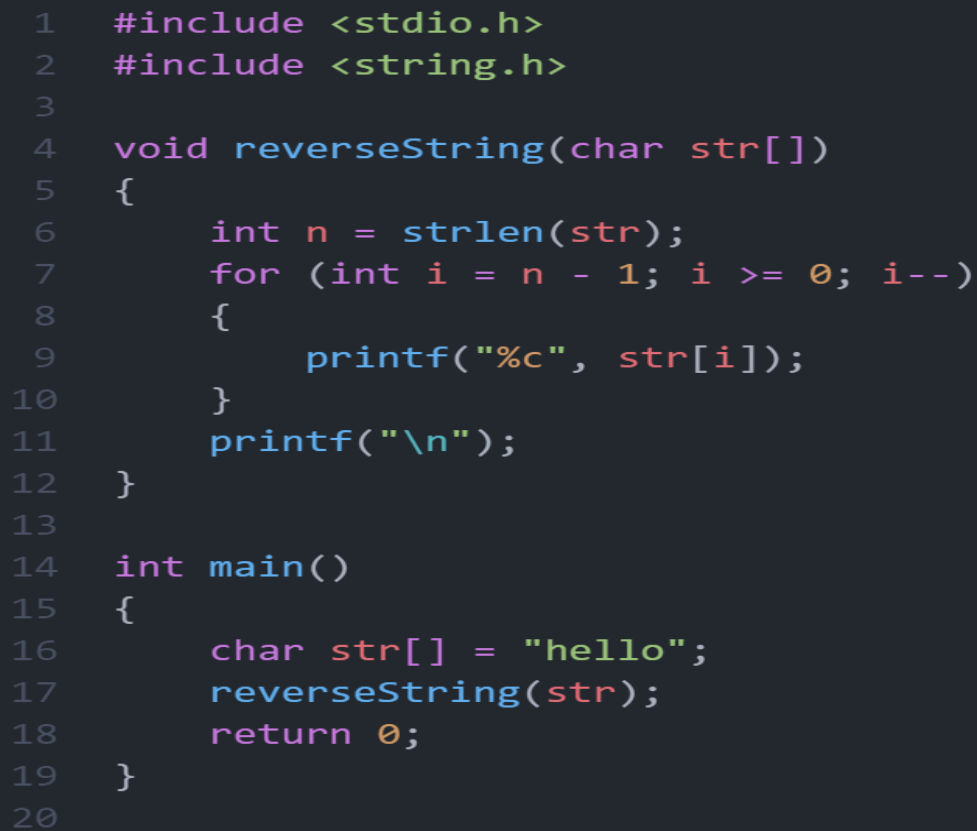
Output:



```
C:\Users\adhik\Desktop\C Prc
The maximum of 10, 15, and 7 is 15.
Press any key to continue . . . |
```

2.3 Reverse a String

Code:



```
1  #include <stdio.h>
2  #include <string.h>
3
4  void reverseString(char str[])
5  {
6      int n = strlen(str);
7      for (int i = n - 1; i >= 0; i--)
8      {
9          printf("%c", str[i]);
10     }
11     printf("\n");
12 }
13
14 int main()
15 {
16     char str[] = "hello";
17     reverseString(str);
18     return 0;
19 }
20
```

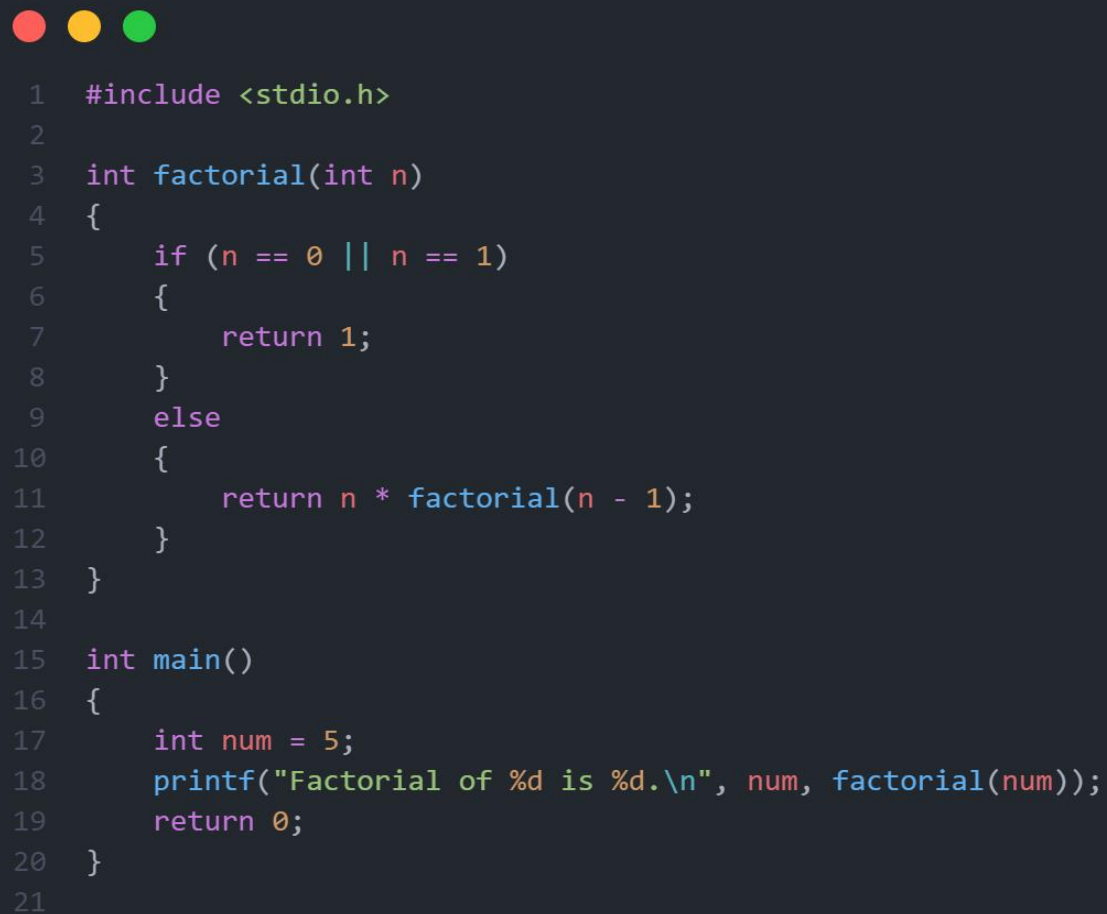
Output:



```
C:\Users\adhik\Desktop\C Prc
olleh
Press any key to continue . . . |
```

2.4 Factorial of a Number Using Recursion

Code:



```
1  #include <stdio.h>
2
3  int factorial(int n)
4  {
5      if (n == 0 || n == 1)
6      {
7          return 1;
8      }
9      else
10     {
11         return n * factorial(n - 1);
12     }
13 }
14
15 int main()
16 {
17     int num = 5;
18     printf("Factorial of %d is %d.\n", num, factorial(num));
19     return 0;
20 }
21
```

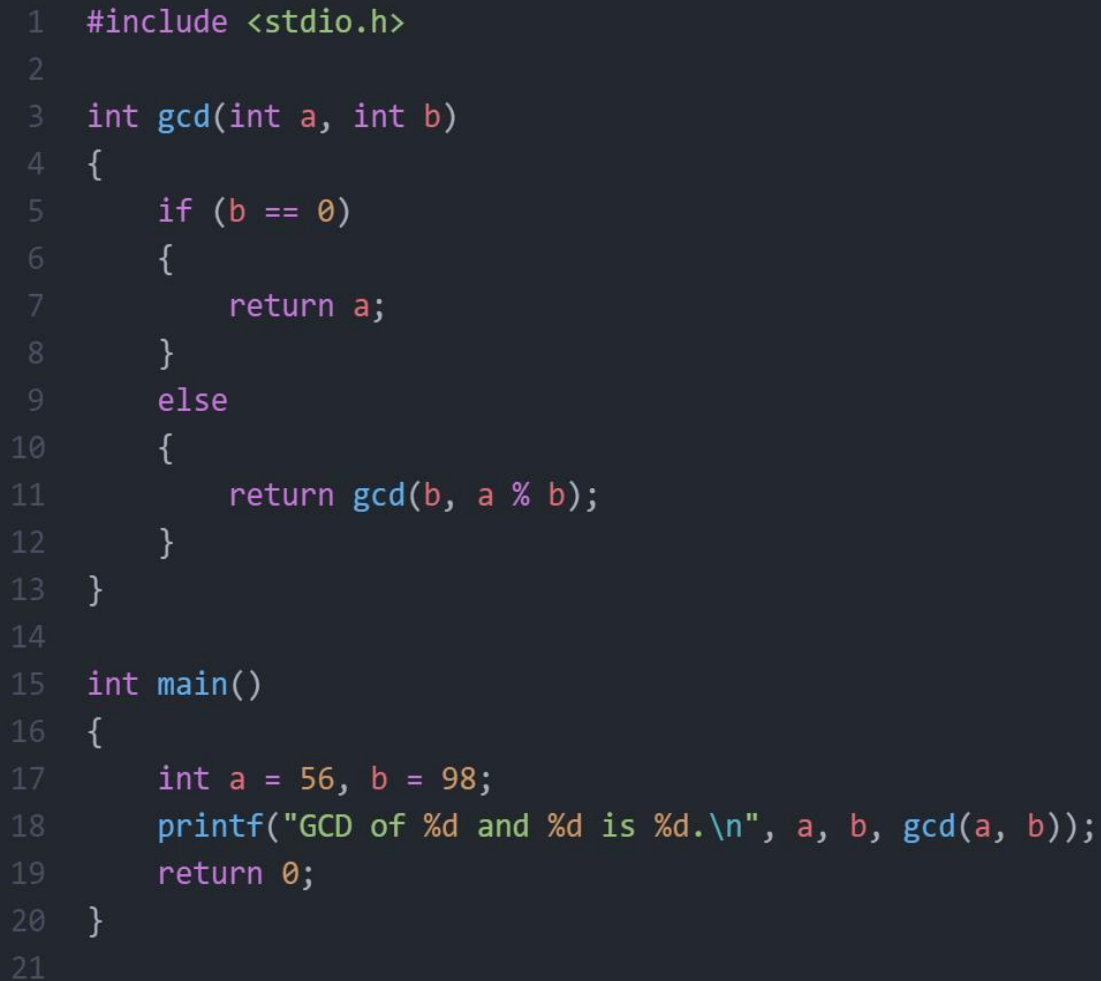
Output:



```
C:\Users\adhik\Desktop\C Prc >
Factorial of 5 is 120.
Press any key to continue . . . |
```

2.5 Two Numbers Using the Euclidean Algorithm

Code:



```
1  #include <stdio.h>
2
3  int gcd(int a, int b)
4  {
5      if (b == 0)
6      {
7          return a;
8      }
9      else
10     {
11         return gcd(b, a % b);
12     }
13 }
14
15 int main()
16 {
17     int a = 56, b = 98;
18     printf("GCD of %d and %d is %d.\n", a, b, gcd(a, b));
19     return 0;
20 }
21
```

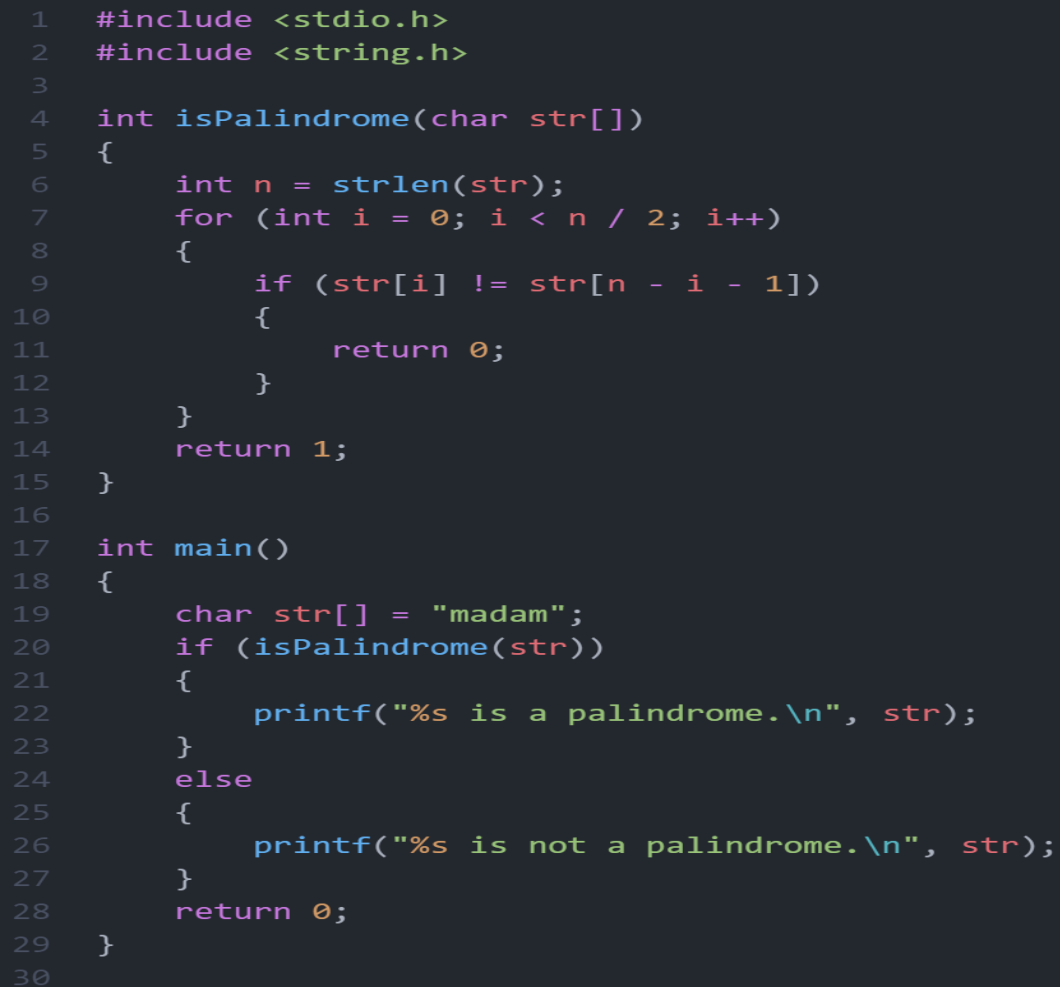
Output:



```
C:\Users\adhik\Desktop\C Prc X + v
GCD of 56 and 98 is 14.
Press any key to continue . . . |
```

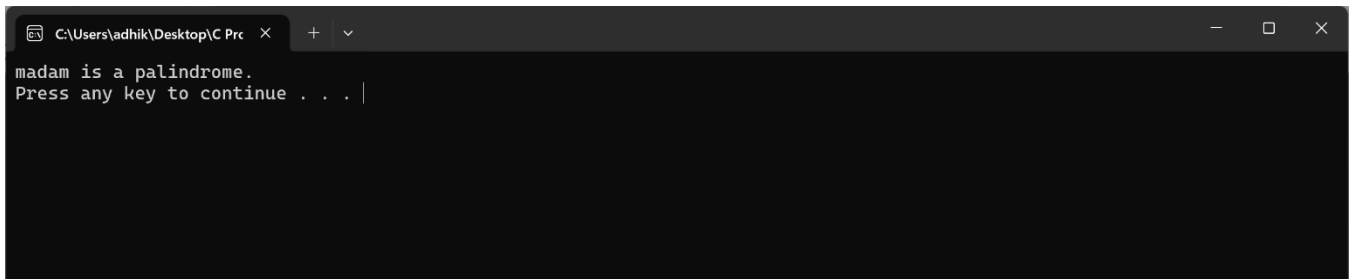
2.6 Check if a String is a Palindrome

Code:



```
1  #include <stdio.h>
2  #include <string.h>
3
4  int isPalindrome(char str[])
5  {
6      int n = strlen(str);
7      for (int i = 0; i < n / 2; i++)
8      {
9          if (str[i] != str[n - i - 1])
10         {
11             return 0;
12         }
13     }
14     return 1;
15 }
16
17 int main()
18 {
19     char str[] = "madam";
20     if (isPalindrome(str))
21     {
22         printf("%s is a palindrome.\n", str);
23     }
24     else
25     {
26         printf("%s is not a palindrome.\n", str);
27     }
28     return 0;
29 }
30
```


Output:



```
C:\Users\adhik\Desktop\C Prc
madam is a palindrome.
Press any key to continue . . . |
```

3. Conclusion

This document provides a detailed overview of the various C programming exercises, including explanations, code, and instructions for each program. Please refer to the screenshots provided to see the programs in action.

4. References

C Programming Language - K&R

- *Authors:* Brian W. Kernighan and Dennis M. Ritchie
- *Description:* A seminal book on C programming, providing foundational knowledge and in-depth explanations of C syntax and features.
- *Link:* [The C Programming Language](#)

GNU C Library Documentation

- *Description:* Official documentation for the GNU C Library, providing detailed information on C standard library functions and their usage.
- *Link:* [GNU C Library Documentation](#)

GeeksforGeeks: C Programming Language

- *Description:* A comprehensive collection of articles, tutorials, and coding examples for learning C programming concepts and solving problems.
- *Link:* [GeeksforGeeks C Programming](#)