Palindrome Program in C

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Problem Statement

- Write a program in C to check whether a number is a palindrome or not.

  - A number is a palindrome if it remains the same when reversed.

Tools Required

- Programming Language : C Programming

- IDE : Visual Studio Code (VS Code)

- Compiler : MinGW (Minimalist GNU for Windows)

Algorithm

- Step 1: Read the number
  - Step 2: Store the original number
  - Step 3: Reverse the number using loop
  - Step 4: Compare reversed number with original
  - Step 5: If equal → Palindrome, else → Not Palindrome

C Program Code

```c
1    #include <stdio.h>
2    #include <string.h>
3    // string se jure hue function ke liy
4
5    /* Function to check palindrome number */
6    void palindromeNumber() {
7        int num, rev = 0, rem, temp;    /*reverse no 0 se start hoga or rem remainder hai(last digit) */
8        // temp orignal number ko surakhtit rkhega
9
10       printf("\nEnter a number: ");
11       scanf("%d", &num);
12   // to take number from user side
13
14       temp = num;
15       // temp=num hmne number ko temp me save kr liya kyuki number
16       // loop me badal jayga
17
18
19       while (num > 0) {
20           rem = num % 10;            /*number la last digit nikalne ke liy*/
21           rev = rev * 10 + rem;      /*yeh number ko reverse bnayga*/
22           num = num / 10;            /*yeh last digit ko htayga*/
23       }
24
25       if (temp == rev)        /*ye orignal or reverse no ko compare krega*/
26           printf("Result: Number is Palindrome\n");    /*agar dono braber hoga*/
27       else
28           printf("Result: Number is NOT Palindrome\n");   /*agar braber n ho to*/
29   }
```

```c
31   /* Function to check palindrome string */
32   void palindromeString() {
33       char str[50];
34       int i, len, flag = 0;
35       /*flag mismatch check krne ke liy or len string ki length*/
36
37       printf("\nEnter a string: ");
38       scanf("%s", str);
39
40       len = strlen(str);      /*string ki length nikalne ke liy*/
41
42       for (i = 0; i < len / 2; i++) {      /*aadhi string tk hi length ko chlayenge qki aage piche compare krna hai*/
43           if (str[i] != str[len - i - 1]) {   /*first or last chr ko compare krenge*/
44               flag = 1;
45               break;      /*agar koi chr match nhi kiya to loop rok denge*/
46           }
47       }
48
49       if (flag == 0)    /*agar koi mismatch nhi hua to*/
50           printf("Result: String is Palindrome\n");
51       else             /*koi mismatch hua to*/
52           printf("Result: String is NOT Palindrome\n");
53   }
54
55   int main() {
56       int choice;      /*user ki choice store krayenge*/
57            /*ye ab menu dikhane ke liy user ko*/
58       printf("===== Palindrome Checker Project =====\n");
59       printf("1. Check Palindrome Number\n");
60       printf("2. Check Palindrome String\n");
61       printf("Enter your choice: ");
62       scanf("%d", &choice);    /*user choice krega*/
```

```c
55    int main() {
56        int choice;        /*user ki choice store krayenge*/
57                  |   /*ye ab menu dikhane ke liy user ko*/
58        printf("===== Palindrome Checker Project =====\n");
59        printf("1. Check Palindrome Number\n");
60        printf("2. Check Palindrome String\n");
61        printf("Enter your choice: ");
62        scanf("%d", &choice);       /*user choice krega*/
63
64        if (choice == 1)        /*1 choose kiya to no wala function chalega*/
65            palindromeNumber();
66        else if (choice == 2)   /*string wala function chalega*/
67            palindromeString();
68        else
69            printf("Invalid Choice!");  /*koi or no choose kiya to*/
70
71        return 0;
72    }
```

C Program Output

```
===== Palindrome Checker Project =====
1. Check Palindrome Number
2. Check Palindrome String
Enter your choice: 1

Enter a number:
```

C Program Output

```
===== Palindrome Checker Project =====
1. Check Palindrome Number
2. Check Palindrome String
Enter your choice:
```

Working Example

- Input: 22
  - Reverse: 22
  - Result: Palindrome Number

Sample Output

- Enter a number: 22
  - Palindrome number

Conclusion

▶ Palindrome number remains same on reversing

▶ Git Hub Link: https://github.com/zahid-raja/c-programming/tree/main/palindrome%20project

▶ Concept used: Loop + Modulus + Integer Reverse