LOOPS in C

1. **Write a program in C to display "Kathmandu" 10 times.**

   ```c
   #include <stdio.h>

   int main(){

           char str[] = "Kathmandu";
           int i;

           for(i = 0; i < 10; i++)
           {
                   printf("%s\n", str);
           }

           return 0;
   }
   ```

2. **Write a program in C to print all the even numbers from 1 to 100.**
   Write a program in C to display the first 10 even numbers.

   ```c
   #include <stdio.h>

   int main(){

           int i;

           for(i = 2; i <= 100; i += 2)
           {
                   printf("%d \t", i);
           }

           getch();
           return 0;

   }
   ```

3. Write a program in C to print all the odd numbers from 1 to 100.
   Write a program in C to display the first 10 odd numbers.

```c
#include <stdio.h>

int main(){

        int i;

        for(i = 1; i < 100; i += 2)
        {
                printf("%d \t", i);
        }

        getch();
        return 0;

}
```

4. WAP to print natural numbers from 1 to 20.

```c
#include <stdio.h>

int main() {

        int i;

        for(i=1; i <= 20; i++)
        {
                printf("%d \n", i);
        }

        getch();

        return 0;
}
```

5. **Write a program in C to print the sum of numbers from 1 to 10.**
   Write a program in C to print the sum of the first 10 natural numbers.

```c
int main()
{
        int i, sum=0;

        for(i = 1; i <= 10; i++)
        {
                sum += i;              // Alternative: sum = sum + i;
        }

        printf("\n\nSum of numbers from 1 to 10 = %d \n", sum);

        getch();
        return 0;
}
```

6. **WAP in C to display and calculate the sum of the following series 1,2,3,4,5 ... upto 10th term.**

```c
#include <stdio.h>

int main(){

        int sum = 0, i;

        printf("Series: ");

        for (i = 1; i <= 10; i++)
           {
           printf("%d ", i);
           sum += i;
        }

        printf("\nSum of the series up to the 10th term: %d\n", sum);

        getch();
        return 0;
}
```

7. **WAP in C to generate the series as 5 10 15 20 ... upto 10th term.**

```c
#include <stdio.h>

int main()
{
    int i, term = 5;

    for (i = 1; i <= 10; i++)
        {
            printf("%d ", term);
            term += 5;              // Add 5 to the term, to get the next term
        }


        getch();
        return 0;
}
```

8. **WAP in C to generate the fibonacci series; 1 2 3 5 8 13 upto 10th term.**

```c
#include <stdio.h>

int main() {

        int first = 1, second = 2, n = 10, next, i;

        printf("\nFibonacci Series: ");

        for (i = 1; i <= 10; i++) {

                printf("%d ", first);

                next = first + second;          // calculate next term
                first = second;                 // update first
                second = next;                  // update second
        }

        getch();
        return 0;
}
```

9. Write a program to print whole numbers from 0 to 5.

```c
// Using While Loop
#include <stdio.h>

int main(){

    int i = 0;

    while(i <= 5)
    {
        printf("%d \n", i);
        i++;
    }

    getch();
    return 0;
}
```

```c
// Alternative: Using Do While Loop
#include <stdio.h>

int main(){

    int i;

    do {
        printf("\n %d", i);
        i++;

    } while(i <= 5);

    getch();
    return 0;
}
```

10. WAP in C to display and calculate the sum of the following series 1, 2, 3, 4, 5 ... upto 10th term.

```c
#include <stdio.h>

int main()
{
        int sum = 0, i = 1;

        printf("Series: ");

        while(i <= 10)
        {
                printf("%d ", i);
                sum += i;
                i++;
        }

        printf("\nSum of the given series: %d\n", sum);

        getch();
        return 0;
}
```

11. WAP in C to find the sum of individual digits given by the user.

```c
#include <stdio.h>

int main() {
    int num, digit, sum = 0;

    printf("Enter a number: ");
    scanf("%d", &num);

    // changing number to positive, if negative number inserted
    num = abs(num);

    while (num > 0)
        {
                digit = num % 10;      // Extract(take) the last digit from num
                sum = sum + digit;  // sum += digit; // Add the digit to the sum
                num = num / 10;     // num /= 10;   // Remove the last digit from the num
        }

    printf("\nSum of digits is : %d \n", sum);

    getch();
    return 0;
}
```

12. WAP in C to find the reverse of a given number by user.

```c
#include <stdio.h>

int main() {

    int num, reverse=0, remainder;

    printf("Enter a number: ");
    scanf("%d", &num);

    // Loop to reverse the number
    while (num != 0)
        {
            remainder = num % 10;                // Get the last digit
            reverse = reverse * 10 + remainder;  // Shift reverse left and add the digit
            num /= 10;                           // Remove the last digit from num
        }

    printf("\nReversed number: %d\n", reverse);

    getch();
    return 0;
}
```

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