**Program Statement:** Write a program in C to find the number and sum of all integer between 100 and 200 which are divisible by 9.

**Theory:** The divisibility test of 9 is based on the same principle as th divisibility test of 3, which states that the sum of the digits of the given number should be divisible by them.

For example, to find whether 459072 is divisible by 9 or not, let us find the sum of the

digits. The sum is 4+5+9+0+7+2 = 27, which can be again summed to 2+7 = 9.

The sum '9' is divisible by 9, therefore, 459072 is divisible by 9.

In this program, the divisibility test of 9 is implemented instead of directly dividing all the

numbers by 9 using nested while loops.

**Algorithm:**

1. Start

2. While(dividend!=200)

3. Num = dividend

4. While(num/10!=0)

5. Sum=0

6. While(num!=0)

7. Rem=num%10

8. Sum = sum +rem

9. Num = num /10

10. Endwhile

11. Num=sum

12. Endwhile

13. If sum =9

14. Write dividend

15. Increment Count

16. Add= add + dividend

17. Endif

18. Increment Dividend

19. Endwhile

20. Write count

21. Write add

22. End

**Program:**

//load header files

#include<stdio.h>

#include<conio.h>

void main()

{

//declare variables

int num, m, rem, add=0, sum=0, dividend=100,count=0;

clrscr();

printf("The numbers between 100 & 200 which are divisible by 9 are....\n");

//while loop 1 to repeat loop from 100 to 200

while(dividend!=201)

{

num = dividend;

// while loop 2 to repeat loop 3 till we get sum of digits of dividend in single digit

while(num / 10 != 0)

{

sum = 0;

//while loop 3 to get the sum of digit of dividend

while(num != 0)

{

rem = num % 10; // get the last digit of num

sum += rem;

// add rem to sum

num /= 10; // remove the last digit from num

}

num = sum;

}

//if loop to check divisibility test of 9

if(sum==9)

{

printf("%d

",dividend);

count++;

//to count the numbers divisible by 9

add+=dividend; //to add the numbers divisible

}

dividend++;

}

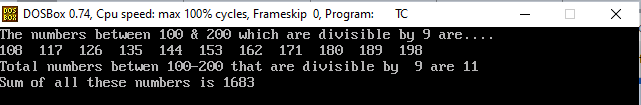
printf("\nTotal numbers betwen 100-200 that are divisible by 9 are %d",count);

printf("\nSum of all these numbers is %d",add);

getch();

}

**/\*Output**

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**\*/**