OOPS Lab File

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Compiler: GCC Compiler TDM-GCC 4.9.2 64-bit release with commands "-g -std=c++11" while calling the compiler

1. **Write a program to get sum of unique digits in a given no.**

```
#include <bits/stdc++.h>
#include <iostream>
#define ll long long
using namespace std;

int main()
{
  int n,t ;
  map <int, int> map ;      // hashmap or bookkeeping map
  cin >> n ;
  while ( n != 0 ) {
      t = n % 10 ;            // t iterates through each digit of n
      if ( map.find(t) == map.end() ) { // if t is not present in the map
             map[t] = 1 ;          // creating a key with value t
      }
      else {  // if t is present in the map
             map[t] ++ ; // adding 1 freuency of t
      }
      n /= 10 ;
   }
  ll sum = 0 ;
  for(auto &j: map) {
      if( (int)j.second == 1) sum +=j.first ;// if unique adding in sum
  }
  cout << sum << '\n' ; // printing the result
  return 0;
}
```

Input	Output
123321	0
123432	5
123	6

2. Write a program to find the sum of even and odd digits separately in of a given no.

```cpp
#include <bits/stdc++.h>
#include <iostream>
#define ll long long
using namespace std;

int main()
{
    int n ;
    cin >> n ; // taking input
    int i = 0 ;
    ll sum_odd = 0 , sum_even = 0 ;
    while( n != 0 ) {
        int t = n % 10 ;
        if( t & 1 ) {              // if t is odd
            sum_odd += t ; // adding it in sum_odd
        }
        else {                     // if t is even
            sum_even += t ; // adding it in sum_even
        }
        n /= 10 ;
    }
    cout << "Sum Even: " << sum_even << ", Sum Odd: " << sum_odd ;
    return 0;
}
```

Input	Output
123	Sum Even: 2 , Sum Odd: 4
1	Sum Even: 0 , Sum Odd: 1
12345	Sum Even: 6 , Sum Odd: 9

3. Write a program to find most frequent digit in a given no.

```
#include <bits/stdc++.h>
#include <iostream>
#define ll long long int
using namespace std ;

int main()
{
    int n,t ;
    map <int, int> map ;       // hashmap or bookkeeping map
    cin >> n ;
    while ( n != 0 ) {
        t = n % 10 ;            // t iterates through each digit of n
        if ( map.find(t) == map.end() ) { // if t is not present in the map
               map[t] = 1 ;
               } else {                    // if t is present in the map
               map[t] ++ ;
               }
        n /= 10 ;
    }
    ll max = 1 ;
    for(auto &j: map) {
        if( (int)j.second > max ) max = j.second ;
// max stores the frequency of the number appearing the most
    }
    for(auto &j: map) {
        if( (int)j.second == max ) cout << j.first << " " ; // printing result
    }
    cout << '\n' ;
    return 0;
}
```

Input	Output
12321	1 2
1234	1 2 3 4
12345321	1 2 3 4

4. Write a program to find the sum of sums of digit in a cyclic order.

```cpp
#include <bits/stdc++.h>
#include <iostream>
#define ll long long int

using namespace std ;

int main()
{
    ios_base::sync_with_stdio(false);
    cin.tie(NULL);
    int n ;
    cin >> n ;
    ll sum = 0 ;
    while ( n!= 0 ) { // loop to calculate sum of digits
        ll temp = n % 10 ;
        sum += temp ;
        n /= 10 ;
    }
    cout << sum*2 << '\n';  // ans=twice of sum of digits //printing answer
    return 0;
}
```

Input	Output
1234	20
12345	30
231	12

5. Program to find the occurrences of unique alphabets in a given string.

```cpp
#include <bits/stdc++.h>
#include <iostream>
using namespace std;

int main()
{
   string s ;
   cin >> s;
   int i = 0 ;
   int book1[26] = {0} ;
   int book2[26] = {0} ;
   while (s[i] != '\0' ) {
       if(s[i] >= 97) book1[s[i] - 97] ++ ; // for lowercase characters
       if(s[i] >= 65 && s[i] <= 90) book2[s[i] - 65] ++ ;
           // for uppercase characters
       i++ ;
   }
   cout << '\n' << "Unique Characters: " ;
   for( i = 0 ; i < 26 ; i++) {
       if(book1[i] == 1 || book2[i] == 1) {
               if (book1[i] == 1 ) cout << (char)(i + 97) ;
               if (book2[i] == 1 ) cout << (char)(i + 65) ;
       }
   }
   cout << '\n' ;
   return 0;
}
```

Input	Output
abcAc	a A b
Abc	A b c
abcdccb	a d