main.cpp

Run

```cpp
#include<iostream>
using namespace std;
int main()
{
    int i,n,m,a;
    cout<<"\nEnter the limit:";
    cin>>n;
    cout<<"\nEnter the table number:";
    cin>>a;
    for(i=1;i<=n;i++)
    {
        cout<<"\n"<<a<<"*"<<i<<"="<<a*i;
    }
    return 0;
}
```

Output

Clear

```
/tmp/E4jYUutBQS.o
Enter the limit:6
Enter the table number:4
4*1=4
4*2=8
4*3=12
4*4=16
4*5=20
4*6=24
```

main.cpp

Run

```cpp
#include <iostream>
using namespace std;
int main()
{
    int n, i, f1, f2, f3;
    cout << "Enter the number: ";
    cin >> n;
    f1 = 0;
    f2 = 1;
    cout << f1 << " " << f2 << " ";
    for(i = 1; i < n; i++)
        {
        f3 = f1 + f2;
        cout << f3 << " ";
        f1 = f2;
        f2 = f3;
    }
    return 0;
}
```

Output

Clear

```
/tmp/E4jYUutBQS.o
Enter the number: 5
0 1 1 2 3 5
```

main.cpp

Run

```cpp
#include <iostream>
using namespace std;

int main() {
    int n;
    bool isPrime = true;

    cout << "Enter a number: ";
    cin >> n;

    for (int i = 2; i <= n / 2; ++i) {
        if (n % i == 0) {
            isPrime = false;
            break;
        }
    }

    if (isPrime)
        cout << n << " is a prime number." << endl;
    else
        cout << n << " is not a prime number." << endl;

    return 0;
}
```

Output

Clear

```
/tmp/E4jYUutBQS.o
Enter a number: 45
45 is not a prime number.
```

main.cpp

Run

Output

Clear

```cpp
#include <iostream>
#include <string>
using namespace std;

int main() {
    string str;
    cout << "Enter a string: ";
    getline(cin, str);

    int start = 0;
    int end = str.length() - 1;
    bool isPalindrome = true;

    while (start < end) {
        if (str[start] != str[end]) {
            isPalindrome = false;
            break;
        }
        start++;
        end--;
    }

    if (isPalindrome)
        cout << "Palindrome" << endl;
    else
        cout << "Not a palindrome" << endl;

    return 0;
}
```

```
/tmp/E4jYUutBQS.o
Enter a string: eye
Palindrome
```

main.cpp

Run

```cpp
#include <iostream>
using namespace std;

int main() {
    int n, sum = 0;

    cout << "Enter a number: ";
    cin >> n;

    while (n > 0) {
        sum += n % 10;
        n /= 10;
    }

    cout << "Sum of digits: " << sum << endl;

    return 0;
}
```

Output

Clear

```
/tmp/E4jYUutBQS.o
Enter a number: 56
Sum of digits: 11
```

main.cpp

Run

```cpp
//21. GCD of two numbers using do-while loop

#include <iostream>
using namespace std;

int main() {
    int num1, num2;

    cout << "Enter two numbers: ";
    cin >> num1 >> num2;

    do {
        if (num1 > num2)
            num1 -= num2;
        else
            num2 -= num1;
    } while (num1 != num2);

    cout << "GCD: " << num1 << endl;

    return 0;
}
```

Output

Clear

```
/tmp/ROqAvA4JDW.o
Enter two numbers: 4 6
GCD: 2
```

main.cpp

Run

Output

Clear

```cpp
//22.  Check whether the number is perfect or not

#include <iostream>
using namespace std;

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

    cout << "Enter a number: ";
    cin >> num;

    for (int i = 1; i < num; ++i) {
        if (num % i == 0)
            sum += i;
    }

    if (sum == num)
        cout << num << " is a perfect number." << endl;
    else
        cout << num << " is not a perfect number." << endl;

    return 0;
}

```

```
/tmp/ROqAvA4JDW.o
Enter a number: 28
28 is a perfect number.
```

main.cpp

Run

Output

Clear

```cpp
//23.  Armstrong number

#include <iostream>
#include <cmath>
using namespace std;
int main() {
    int num, originalNum, remainder, n = 0, result = 0;
    cout << "Enter an integer: ";
    cin >> num;
    originalNum = num;
    while (originalNum != 0) {
        originalNum /= 10;
        ++n;
    }
    originalNum = num;
    while (originalNum != 0) {
        remainder = originalNum % 10;
        result += pow(remainder, n);
        originalNum /= 10;
    }
    if (result == num)
        cout << num << " is an Armstrong number." << endl;
    else
        cout << num << " is not an Armstrong number." << endl;
    return 0;
}

```

```
/tmp/ROqAvA4JDW.o
Enter an integer: 456
456 is not an Armstrong number.
```

GarageBand

main.cpp

Run

Output

Clear

```cpp
//25.HAPPY NUMBER
#include <iostream>
#include <unordered_set>
using namespace std;
int getSumOfSquares(int n) {
    int sum = 0;
    while (n > 0) {
        int digit = n % 10;
        sum += digit * digit;
        n /= 10;
    }
    return sum;
}
bool isHappy(int n) {
    unordered_set<int> visited;
    while (n != 1 && visited.find(n) == visited.end()) {
        visited.insert(n);
        n = getSumOfSquares(n);
    }
    return n == 1;
}
int main() {
    int num;
    cout << "Enter a number: ";
    cin >> num;
    if (isHappy(num))
        cout << num << " is a Happy number." << endl;
    else
        cout << num << " is not a Happy number." << endl;
    return 0;
```

```
/tmp/ROqAvA4JDW.o
Enter an integer: 567
567 is not a Harshad number.
```

main.cpp

Run

Output

Clear

```cpp
//25.happy number
#include <iostream>
#include <unordered_set>
using namespace std;

int getSumOfSquares(int n) {
    int sum = 0;
    while (n > 0) {
        int digit = n % 10;
        sum += digit * digit;
        n /= 10;
    }
    return sum;
}
bool isHappy(int n) {
    unordered_set<int> visited;
    while (n != 1 && visited.find(n) == visited.end()) {
        visited.insert(n);
        n = getSumOfSquares(n);
    }
    return n == 1;
}
int main() {
    int num;
    cout << "Enter a number: ";
    cin >> num;
    if (isHappy(num))
        cout << num << " is a Happy number." << endl;
    else
        cout << num << " is not a Happy number." << endl;
```

```
/tmp/ROqAvA4JDW.o
Enter a number: 34
34 is not a Happy number.
```

main.cpp

Run

Output

Clear

```cpp
//25.STRONG NUMBER
#include <iostream>
using namespace std;
int factorial(int n) {
    if (n == 0 || n == 1)
        return 1;
    else
        return n * factorial(n - 1);
}
int main() {
    int num, originalNum, sum = 0;
    cout << "Enter an integer: ";
    cin >> num;
    originalNum = num;
    while (num > 0) {
        sum += factorial(num % 10);
        num /= 10;
    }
    if (sum == originalNum)
        cout << originalNum << " is a Strong number." << endl;
    else
        cout << originalNum << " is not a Strong number." << endl;
    return 0;
}
```

```
/tmp/ROqAvA4JDW.o
Enter an integer: 145
145 is a Strong number.
```

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