Sample Programs

1. Print N Natural Numbers

```
#include <iostream>
int main() {
int n;
5 std::cout << "Enter a number: ";
std::cin >> n;
for (int i = 1; i <= n; i++) {
std::cout << i << " ";
}
return 0;
}
```

2. Sum of Digits

```
#include <iostream>
int main() {
int n, sum = 0, digit;
std::cout << "Enter a number: ";
std::cin >> n;
while (n != 0) {
digit = n % 10;
sum += digit;
n /= 10;
}
std::cout << "Sum of digits: " << sum;
return 0;
}
```

3. Palindrome or Not

```
6#include <iostream>
int main() {
int n, reversed = 0, remainder, original;
std::cout << "Enter a number: ";
std::cin >> n;
original = n;
while (n != 0) {
remainder = n % 10;
```

```
reversed = reversed * 10 + remainder;
n /= 10;
}
if (original == reversed) {
std::cout << original << " is a palindrome.";
} else {
std::cout << original << " is not a palindrome.";
}
return 0;
}
```

4. GCD of 2 Numbers

```
#include <iostream>
int gcd(int a, int b) {
if (b == 0) return a;
return gcd(b, a % b);
7}
int main() {
int num1, num2;
std::cout << "Enter two numbers: ";
std::cin >> num1 >> num2;
std::cout << "GCD of " << num1 << " and " << num2 << " is " << gcd(num1,
num2);
return 0;}
```

5. Matrix Addition (2D Array)

```
#include <iostream>
int main() {
int A[2][2] = {{1, 2}, {3, 4}};
int B[2][2] = {{5, 6}, {7, 8}};
int C[2][2];
for (int i = 0; i < 2; i++) {
for (int j = 0; j < 2; j++) {
C[i][j] = A[i][j] + B[i][j];
}
}
std::cout << "Resultant Matrix: \n";
```

```
for (int i = 0; i < 2; i++) {
for (int j = 0; j < 2; j++) {
std::cout << C[i][j] << " ";
8 }
std::cout << "\n";
}
return 0;
}
```

6. Find Maximum of an Array

```
#include <iostream>
int main() {
int arr[] = {10, 5, 20, 15, 25};
int n = sizeof(arr) / sizeof(arr[0]);
int max = arr[0];
for (int i = 1; i < n; i++) {
if (arr[i] > max) {
max = arr[i];
}
}
std::cout << "Maximum element is: " << max;
return 0;
}
```

7. Switch Case Program (Day of the Week)

```
#include <iostream>
int main() {
9 int day;
std::cout << "Enter day number (1-7): ";
std::cin >> day;
switch (day) {
case 1: std::cout << "Monday"; break;
case 2: std::cout << "Tuesday"; break;
case 3: std::cout << "Wednesday"; break;
case 4: std::cout << "Thursday"; break;
case 5: std::cout << "Friday"; break;
case 6: std::cout << "Saturday"; break;
```

```
case 7: std::cout << "Sunday"; break;
default: std::cout << "Invalid day number";
}
return 0;
}
```

8. Leap Year or Not

```
#include <iostream>
int main() {
int year;
std::cout << "Enter a year: ";
std::cin >> year;
if ((year % 400 == 0) || (year % 4 == 0 && year % 100 != 0)) {
std::cout << year << " is a leap year.";
10 } else {
std::cout << year << " is not a leap year.";
}
return 0;
}
```

9. Biggest among 2 Numbers

```
#include <iostream>
int main() {
int num1, num2;
std::cout << "Enter two numbers: ";
std::cin >> num1 >> num2;
if (num1 > num2) {
std::cout << num1 << " is the biggest.";
} else {
std::cout << num2 << " is the biggest.";
}
return 0;
}
```

10. Biggest among 3 Numbers

```
#include <iostream>
int main() {
int num1, num2, num3;
```