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LAB MANUAL : 7

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PROGRAM 1:

```
#include <iostream>
```

```
int main() {
```

```
    const int SIZE = 10; // Size of the array
```

```
    int numbers[SIZE];
```

```
    // Taking input from the user
```

```
    std::cout << "Enter 10 integers, one at a time:\n";
```

```
    for (int i = 0; i < SIZE; ++i) {
```

```
        std::cout << "Enter integer #" << (i + 1) << ": ";
```

```
        std::cin >> numbers[i];
```

```
    }
```

```
    // Printing the entered integers
```

```
    std::cout << "\nEntered integers:\n";
```

```
    for (int i = 0; i < SIZE; ++i) {
```

```
        std::cout << numbers[i] << " ";
```

```
    }
```

```
    return 0;
```

```
}
```

PROGRAM 2:

```
#include <iostream>
```

```
int main() {
```

```
    const int SIZE = 5; // Size of the array
```

```
    int numbers[SIZE];
```

```
    // Taking input from the user
```

```
    std::cout << "Enter 5 integers, one at a time:\n";
```

```
    for (int i = 0; i < SIZE; ++i) {
```

```
        std::cout << "Enter integer #" << (i + 1) << ": ";
```

```
        std::cin >> numbers[i];
```

```
    }
```

```
    // Calculating the sum and product
```

```
    int sum = 0;
```

```
    int product = 1;
```

```
    for (int i = 0; i < SIZE; ++i) {
```

```
        sum += numbers[i];
```

```
        product *= numbers[i];
```

```
    }
```

```
    // Printing the sum and product
```

```
    std::cout << "\nSum of the elements: " << sum << "\n";
```

```
    std::cout << "Product of the elements: " << product << "\n";
```

```
    return 0;
```

```
}
```

PROGRAM 3:

```
#include <iostream>
```

```
int main() {
```

```
    const int SIZE = 5; // Size of the array
```

```
    int array[SIZE];
```

```
    // Initialize the array with zeros
```

```
    for (int i = 0; i < SIZE; ++i) {
```

```
        array[i] = 0;
```

```
    }
```

```
    // Print the upper part of the diamond
```

```
    for (int i = 0; i < SIZE; ++i) {
```

```
        array[i] = 1;
```

```
        for (int j = 0; j < SIZE; ++j) {
```

```
            if (j < SIZE - i - 1) {
```

```
                std::cout << " ";
```

```
            } else {
```

```
                std::cout << array[j];
```

```
            }
```

```
        if (j < SIZE - 1) {
```

```
            std::cout << " ";
```

```
        }
```

```
    }
```

```
    std::cout << "\n";
```

```

}

// Print the lower part of the diamond
for (int i = SIZE - 2; i >= 0; --i) {
    array[i] = 1;

    for (int j = 0; j < SIZE; ++j) {
        if (j < SIZE - i - 1) {
            std::cout << " ";
        } else {
            std::cout << array[j];
        }

        if (j < SIZE - 1) {
            std::cout << " ";
        }
    }

    std::cout << "\n";
}

return 0;
}

```

