CSE ASSIGNMENT 3

Problem 1

Question:

> Write a C program to print following pascal triangle:
> 1
> 1 2
> 1 2 3
> 1 2 3 4

Code:

```c
// Program to print a pascal triangle

// Include required headers
#include <stdio.h>

// Start program from here
int main()
{
    // Print the pascal triangle
    for(int i = 1; i <= 4; i++)
    {
        for(int j = 1; j <= i; j++)
        {
            printf("%d ", j);
        }

        printf("\n");
    }

    // Return zero to show success
    return 0;
}
```

Output:

```
❯ clang -Wall "Assignment 3/CSE ASS 3 Prob 1.c"
❯ ./a
1
1 2
1 2 3
1 2 3 4
```

Problem 2

Question:

| Write a C program to dispaly reverse a digit

Code:

```c
// Program to reverse the digits of a number

// Required headers
#include <stdio.h>

// Execution starts here
int main()
{
    // Vars
    int num, rev = 0, remainder;

    // Get the input
    printf("Enter a number to be reversed : ");
    scanf("%d", &num);

    // Reverse the number
    while (num != 0)
    {
        remainder = num % 10;
        num /= 10;
        rev = (rev * 10) + remainder;
    }

    // Print output
    printf("The reverse is : %d\n", rev);

    // Return zero to show success
    return 0;
}
```

Output:

```
❯ clang -Wall "Assignment 3/CSE ASS 3 Prob 2.c"
❯ ./a
Enter a number to be reversed : 1472
The reverse is : 2741
```

Problem 3

Question:

| Write a C program to calculate the sum of digit

Code:

```c
// Program to add all the digits of a number

// Requuired headers
#include <stdio.h>

// Code execution starts here
int main()
{
    // Vars
    int input, remainder, sum = 0;

    // Get the input from the user
    printf("Enter a number : ");
    scanf("%d", &input);

    // Add the digits
    while (input != 0)
    {
        remainder = input % 10;
        input /= 10;
        sum += remainder;
    }

    // Print output
    printf("The sum of the digits is : %d\n", sum);

    // Return zero to show success
    return 0;
}
```

Output:

```
❯ clang -Wall "Assignment 3/CSE ASS 3 Prob 3.c"
❯ ./a
Enter a number : 452
The sum of the digits is : 11
```

Problem 4

Question:

| Write a C program to find given number is palindrome or not

Code:

```c
// Program to determine if a given number is a palindrome

// Required headers
#include <stdio.h>

// Code execution starts here
int main()
{
    // Vars
    int input, copy_of_input, rev, remainder;

    // Get the input and copy input to another var
    printf("Enter a number to check palindrome : ");
    scanf("%d", &input);

    copy_of_input = input;

    // Compute the reverse of input
    while (input != 0)
    {
        remainder = input % 10;
        input /= 10;
        rev = (rev * 10) + remainder;
    }

    // Check for palindrome
    if (copy_of_input == rev)
    {
        printf("The given number is a palindrome\n");
    }
    else
    {
        printf("The given number was not a palindrome\n");
    }

    // Return zero to show success
    return 0;
}
```

Output:

```
> clang -Wall "Assignment 3/CSE ASS 3 Prob 4.c"
> ./a
Enter a number to check palindrome : 123
The given number was not a palindrome
```

```
> clang -Wall "Assignment 3/CSE ASS 3 Prob 4.c"
> ./a
Enter a number to check palindrome : 727
The given number is a palindrome
```

Problem 5

Question:

❚ Write a C program to check given number is Armstrong number

Code:

```c
// Program to check whether a given number is an Armstrong number

// Required headers
#include <stdio.h>

// Code execution starts here
int main()
{
    // Vars
    int num, copy_of_num, remainder, sum = 0;

    // Get the input and make a copy
    printf("Enter a number : ");
    scanf("%d", &num);

    copy_of_num = num;

    // Compute the cube of each digit and add them
    while (num != 0)
    {
        remainder = num % 10;
        num /= 10;
        sum += remainder * remainder * remainder;
    }

    // Check for armstrong number and print output
    if (sum == copy_of_num)
    {
        printf("The given number is an armstrong number\n");
    }
    else
    {
        printf("The given number is not an armstrong number\n");
    }

    // Return zero to show success
    return 0;
```

```
    }
```

Output

```
❯ clang -Wall "Assignment 3/CSE ASS 3 Prob 5.c"
❯ ./a
Enter a number : 123
The given number is not an armstrong number


❯ clang -Wall "Assignment 3/CSE ASS 3 Prob 5.c"
❯ ./a
Enter a number : 153
The given number is an armstrong number
```