a. Develop a program about fundamental Data types C Programming. (i.e., int, float, and string types)

main.c

Share Run

```c
#include <stdio.h>

int main() {
    int age;
    float height;
    char gender;
    char name[50];  // Name still needs array because it's a string
    // Input age
    printf("Enter your age: ");
    scanf("%d", &age);
    // Input height
    printf("Enter your height in centimeters: ");
    scanf("%f", &height);
    // Input gender
    printf("Enter your gender (M/F): ");
    scanf(" %c", &gender);  // Note the space before %c to ignore any leftover newline
    // Input name
    printf("Enter your name: ");
    scanf("%s", name);
    // Display all values
    printf("\n--- Displaying your data ---\n");
    printf("Name: %s\n", name);
    printf("Age: %d\n", age);
    printf("Height: %.2f cm\n", height);
    printf("Gender: %c\n", gender);
    return 0;
}
```

Output

```
Enter your age: 23
Enter your height in centimeters: 160
Enter your gender (M/F): F
Enter your name: Piyali Sen
```

b. Write a C program that calculates the Simple Interest and Compound Interest. The Principal, Amount, Rate of Interest and Time are entered through the keyboard.

main.c

Share Run

```c
#include <stdio.h>
#include <math.h>  // For pow() function used in compound interest

int main() {
    float principal, rate, time;
    float simpleInterest, compoundInterest;

    // Input values from user
    printf("Enter Principal amount: ");
    scanf("%f", &principal);

    printf("Enter Rate of Interest (in %%): ");
    scanf("%f", &rate);

    printf("Enter Time (in years): ");
    scanf("%f", &time);

    // Calculate Simple Interest
    simpleInterest = (principal * rate * time) / 100;

    // Calculate Compound Interest (compounded annually)
    compoundInterest = principal * pow((1 + rate / 100), time) - principal;

    // Display results
    printf("\nSimple Interest = %.2f\n", simpleInterest);
    printf("Compound Interest = %.2f\n", compoundInterest);

    return 0;
}
```

Output

```
Enter Principal amount: 40000
Enter Rate of Interest (in %): 10
Enter Time (in years): 2

Simple Interest = 8000.00
Compound Interest = 8400.00


=== Code Execution Successful ===
```

a. Write a C program to find the greatest of three numbers.

main.c

Share Run

```c
#include <stdio.h>

int main() {
    // Implicit type conversion (automatic)
    int a = 10;
    float b = 3.5;
    float sum;

    sum = a + b; // int is automatically converted to float
    printf("Sum (int + float) = %.2f\n", sum);

    // Explicit type conversion (casting)
    float c = 7.8;
    int d;

    d = (int)c; // float is explicitly converted to int
    printf("Explicit conversion of float %.2f to int = %d\n", c, d);

    // Integer division vs float division
    int x = 5, y = 2;
    printf("Integer division 5/2 = %d\n", x / y);
    printf("Float division using casting 5/2 = %.2f\n", (float)x / y);

    // Char to int conversion
    char ch = 'A';
    int asciiValue = ch; // char automatically converted to int
    printf("ASCII value of '%c' = %d\n", ch, asciiValue);
    return 0;
}
```

Output

```
Sum (int + float) = 13.50
Explicit conversion of float 7.80 to int = 7
Integer division 5/2 = 2
Float division using casting 5/2 = 2.50
ASCII value of 'A' = 65


=== Code Execution Successful ===
```