WEEK 3 EXERCISE

PART A: A Program to Calculate the Area of a Rectangle

Write a C program that calculates the area of a rectangle. The program should:

1. Prompt the user to enter the length and width of the rectangle.
2. Read the length and width values entered by the user.
3. Calculate the area of the rectangle using the formula: area = length * width.
4. Print the calculated area of the rectangle on the screen.

Here's an outline of the program:

```c
#include <stdio.h>

int main() {
    // Step 1: Prompt the user to enter the length and width
    printf("Enter the length of the rectangle: ");
    // Step 2: Read the length value entered by the user

    printf("Enter the width of the rectangle: ");
    // Step 2: Read the width value entered by the user

    // Step 3: Calculate the area of the rectangle

    // Step 4: Print the calculated area of the rectangle

    return 0;
}
```

Your task is to fill in the missing parts and complete the program according to the steps outlined in the comments. Here are some hints to guide you:

1. Use the `scanf` function to read the length and width values entered by the user.
2. Create a variable to store the length, a variable to store the width, and another variable to store the calculated area.
3. Use the formula `area = length * width` to calculate the area of the rectangle.
4. Use the `printf` function to print the calculated area of the rectangle on the screen.

After completing the program, compile and run it. Test it with different length and width values to see if it calculates the area correctly.

PART B: KEYWORDS

Explain the meaning and application of the following terms in C programming:

1. scanf
2. #include <stdio.h>
3. int main() { … }
4. return 0;
5. printf

PART C: Perform Arithmetic Operations with Different Data Types

Write a C program that performs arithmetic operations on variables of different data types. The program should:

1. Declare variables of various data types: `int`, `float`, `double`, and `char`.
2. Assign values to these variables.
3. Perform arithmetic operations (addition, subtraction, multiplication, division) on these variables.
4. Print the results of the arithmetic operations on the screen.

Here's an outline of the program:

```c
#include <stdio.h>

int main() {
    // Step 1: Declare variables of different data types
    // int variable
    // float variable
    // double variable
    // char variable

    // Step 2: Assign values to the variables

    // Step 3: Perform arithmetic operations
    // Addition
    // Subtraction
    // Multiplication
    // Division

    // Step 4: Print the results of the arithmetic operations

    return 0;
}
```

Your task is to fill in the missing parts and complete the program according to the steps outlined in the comments. Here are some hints to guide you:

- Declare variables of the appropriate data types: int for integers, `float` for single-precision floating-point numbers, `double` for double-precision floating-point numbers, and `char` for characters.
- Assign values to each of the variables using the assignment operator (`=`).
- Perform arithmetic operations using the appropriate operators (`+` for addition, `-` for subtraction, `*` for multiplication, `/` for division).
- Use the `printf` function to print the results of the arithmetic operations on the screen.

For example, you can add an integer and a float, multiply a double with an integer, or divide two integers, and so on.

After completing the program, compile and run it. Observe the results of the arithmetic operations with different data types.