

Name: Mark Achilles G. Flores Jr.

Assessment: Function with arguments

Year & Section: BSCS 1-4

1. Write a program that takes two integer inputs from the user and finds the sum and product of those two numbers using functions. Use functions with arguments to perform the calculation.

Example Output:

Enter the first integer: 4

Enter the second integer: 7

The sum of 4 and 7 is 11.

The product of 4 and 7 is 28.

```
1 #include <stdio.h>
2
3 int add(a, b) {
4     printf("The sum of %d and %d is %d.\n", a, b, a + b);
5 }
6
7 int multiply(a, b) {
8     printf("The product of %d and %d is %d.\n", a, b, a * b);
9 }
10
11 int main() {
12     int a, b;
13     printf("Enter the first integer: ");
14     scanf("%d", &a);
15
16     printf("Enter the second integer: ");
17     scanf("%d", &b);
18
19     add(a, b);
20     multiply(a, b);
21
22     return 0;
23 }
```

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2. Write a program that takes a temperature value in Celsius as input from the user and converts it to Fahrenheit using a function with arguments. The conversion formula is $F = (C * 9/5) + 32$, where F is the temperature in Fahrenheit and C is the temperature in Celsius.

Example Output:

Enter the temperature in Celsius: 25

25 degrees Celsius is equal to 77 degrees Fahrenheit.

```
1 #include <stdio.h>
2
3 float c_to_f(float degree) {
4     float in_fahr = (degree * (9.0/5.0)) + 32;
5     return in_fahr;
6 }
7
8 int main() {
9     float degree, in_fahr;
10    printf("Enter the temperature in Celsius: ");
11    scanf("%f", &degree);
12
13    in_fahr = c_to_f(degree);
14
15    printf("%.2f degrees Celsius is equal to %.2f degrees Fahrenheit.", degree, in_fahr);
16
17    return 0;
18 }
```

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3. Write a program that calculates the area of different shapes using functions with arguments. Try to complete the activity on your own.

Example Output:

Select a shape to calculate the area of:

1. *Rectangle*
2. *Circle*
3. *Triangle*
4. *Square*

Enter your choice: 2

Enter the radius of the circle: 5

The area of the circle is 78.539816.

Select a shape to calculate the area of:

1. *Rectangle*
2. *Circle*
3. *Triangle*
4. *Square*

Enter your choice: 3

Enter the base of the triangle: 6

Enter the height of the triangle: 8

The area of the triangle is 24.000000.

Note: You may need to include the math library to use the pow() function for calculating the area of the circle. You can include the math library by adding #include to the top of your code.

```
1 #include <stdio.h>
2
3 float rectangle() {
4     float base, height;
5     printf("Enter base: ");
6     scanf("%f", &base);
7     printf("Enter height: ");
8     scanf("%f", &height);
9
10    return base * height;
11 }
12
13 float circle() {
14     const float PI = 3.14159;
15     float radius;
16     printf("Enter radius: ");
17     scanf("%f", &radius);
18
19     return PI * (radius * radius);
20 }
21
22 float triangle() {
23     float base, height;
24     printf("Enter base: ");
25     scanf("%f", &base);
26     printf("Enter height: ");
27     scanf("%f", &height);
28
29     return (base * height) * 0.5;
30 }
31
32 float square() {
33     float length;
34     printf("Enter length: ");
35     scanf("%f", &length);
36
37     return length * length;
38 }
39
40 int main() {
41     int choice;
42     float area;
43     printf("Select a shape to calculate the area of:\n");
44     printf("1. Rectangle\n");
45     printf("2. Circle\n");
46     printf("3. Triangle\n");
47     printf("4. Square\n");
48     printf("Enter your choice: ");
49     scanf("%d", &choice);
50
51     if (choice == 1) {
52         area = rectangle();
53     } else if (choice == 2) {
54         area = circle();
55     } else if (choice == 3) {
56         area = triangle();
57     } else if (choice == 4) {
58         area = square();
59     } else {
60         main();
61     }
62
63     printf("The area is %.2f", area);
64
65     return 0;
66 }
```

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4. Write a function named "calculateBMI" that takes two double arguments (height and weight) and calculates the Body Mass Index (BMI) of a person.

Example Output:

Enter height in meters: 1.75

Enter weight in kilograms: 70

Your BMI is: 22.86

Note: The BMI is calculated as weight (in kilograms) divided by the square of height (in meters). The resulting value is interpreted according to the following table:

- BMI < 18.5: Underweight
- 18.5 <= BMI < 25: Normal
- 25 <= BMI < 30: Overweight
- BMI >= 30: Obese

```
1 #include <stdio.h>
2
3 float bmi(float weight, float height) {
4     return weight / (height * height);
5 }
6
7 int main() {
8     float weight, height, result;
9
10    printf("Enter height in meters: ");
11    scanf("%f", &height);
12    printf("Enter weight in kilograms: ");
13    scanf("%f", &weight);
14
15    result = bmi(weight, height);
16
17    printf("Your BMI is %.2f", result);
18
19    return 0;
20 }
```

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5. Write a C program that takes a character as input from the user and passes it to a function that checks whether the character is a vowel or consonant.

Example Output:

Enter a character: a

The entered character is a vowel.

Enter a character: t

The entered character is a consonant.

```
1 #include <stdio.h>
2 int is_vowel(char letter) {
3     char vowels[] = {'a', 'e', 'i', 'o', 'u', 'A', 'E', 'I', 'O', 'U'};
4     int res = 0;
5
6     for (int i=0; i<10; i++) {
7         if (vowels[i] == letter) {
8             res = 1;
9             break;
10        }
11    }
12
13    return res;
14 }
15
16 int main() {
17     char letter;
18
19     printf("Enter a character: ");
20     scanf("%c", &letter);
21
22     if (is_vowel(letter) == 1) {
23         printf("The entered character is a vowel.");
24     } else {
25         printf("The entered character is a consonant.");
26     }
27
28     return 0;
29 }
```