COMP500 / ENSE501: Week 11 – Exercise:

EXERCISE NAME: *Add Pre-Conditions*

Given the following program source code:

```c
#define _CRT_SECURE_NO_WARNINGS
#include <stdio.h>

float calculate_area(float radius);
float calculate_circumference(float radius);
float calculate_radius(float diameter);
float get_diameter(void);
void print_area(float area);
void print_circumference(float circumference);
void print_diameter_prompt(void);

int main(void)
{
    float diameter = get_diameter();
    float radius = calculate_radius(diameter);

    print_area(calculate_area(radius));
    print_circumference(calculate_circumference(radius));

    return 0;
}

float calculate_area(float radius)
{
    return (3.14159f * radius * radius);
}

float calculate_circumference(float radius)
{
    return (2 * 3.14159f * radius);
}

float calculate_radius(float diameter)
{
    return (diameter / 2.0f);
}

void print_area(float area)
{
    printf("Area: %f\n", area);
}

```

```c
43   float get_diameter(void)
44   {
45       float user_diameter = 0;
46
47       print_diameter_prompt();
48       scanf("%f", &user_diameter);
49
50       return user_diameter;
51   }
52
53   void print_circumference(float circumference)
54   {
55       printf("Circumference: %f\n", circumference);
56   }
57
58   void print_diameter_prompt(void)
59   {
60       printf("Input circle diameter: ");
61   }
```

Add declaration prototypes for each function defined in the program.

Add suitable **assert** pre-conditions to the following functions:
- `calculate_area`
- `calculate_circumference`
- `print_area`
- `print_circumference`