Program Set 4

Dates: 05.12.2022 – 09.12.2022

NOTE: GIVE PROPER COMMENTS, PROMPTS AND CUES FOR ALL CODES.

1. Write a program to take any int value from user. Declare pointer, and a pointer to pointer for this variable. Use the pointer operators (& and *) to access and print the values and addresses of this variable, pointer and pointer to pointer in all possible ways.
2. Repeat problem 1 for a float value. (Optional)
3. Write a program to add two integers using a function. Take user input and print out result from main().
    a. Use call by value
    b. Use call by reference
4. Write a program to calculate the factorial value of any integer, using a function. Take user input and print out result from main().
    a. Use call by value
    b. Use call by reference
5. Write a program to calculate the power of any integer raised to another integer, using a function. Take user input and print out result from main(). Do not use math.h.
    a. Use call by value
    b. Use call by reference
6. Check if an integer is prime or not using functions:
    a. Use call by value
    b. Use call by reference
7. Check if an integer is an Armstrong number or not using functions:
    a. Use call by value
    b. Use call by reference
8. Write a function that receives 5 integers and evaluates the sum, average and standard deviation of these numbers. Call this function from main( ) and print the results in main( ). (Optional)
9. Write a function that received the radius of a circle and evaluates the are and the circumference. Call this function from main( ) and print the results in main( ).
10. Write a program to find the greater of two input integers using a function. The function should return the pointer to the greater number. Use call by reference.

Example for call by reference and call by value

```c
#include <stdio.h>
int add_val(int a, int b){ //call by value
    int sum;
    sum = a+b;
    return sum;
}
int add_ref(int *a, int *b){ //call by reference
    int sum;
    sum = *a+*b;
    return sum;
}
int main() {
    int x = 10, y = 20, sum_val, sum_ref;
    sum_val = add_val(x,y);
    printf("Sum_val = %d",sum_val);
    sum_ref = add_ref(&x,&y);
    printf("\nSum_ref = %d",sum_ref);
    return 0;
```