DSA - Practical 2

1. Discuss the output of the following programs:

- Program 1:

```c
#include <stdio.h>
void main() {
   int a, *b, *c;
   a = 100;
   b = &a;
   c = b;
   printf("a: %d, %p \n", a, &a);
   printf("b: %p, %p \n", b, &b);
   printf("c: %p, %p \n", c, &c);
}
```

- Program 2:

```c
#include <stdio.h>
void main() {
   int a = 3, b = 6;
   int *c, *d;
   c = &a;
   d = &b;
   *c = 100;
   c = d;
   *d = 200;
   printf("a = %d\n", a);
   printf("b = %d\n", b);
   *c = 300;
   printf("b = %d\n", b);
}
```

2. Pointers and Arrays

- Write a C program that reads 10 integer numbers from the user, stores them in an array, and prints their average.

- Try to modify the program to allow the user to input how many numbers he\she has, instead of a fixed number of 10. What do you find?

- Research and\or review about pointers and dynamic memory allocation with the malloc() function to solve the question above.

3. Write a program that reads two arrays of integers from the user, whose sizes are determined at runtime, and then creates a third array which contains all the elements of these two arrays, and print them all for confirmation.

- The End -