Lab: 1

Introduction/ Refresher for C Language

Due Date: January 7, 2021

Lab Session:Virtual/ Remote (A3, 16603)

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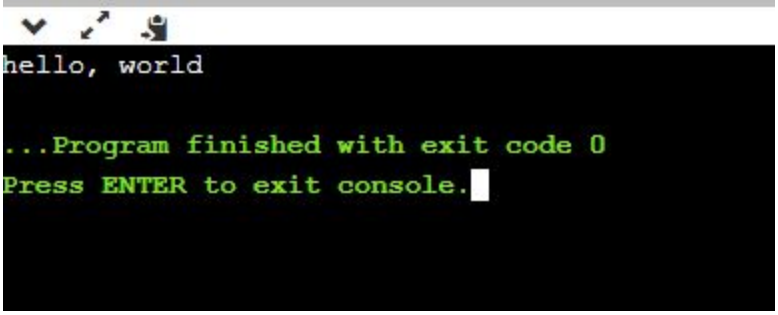
Exercise 1 Result/ Simulation:

main.c

```c
/*
 * exercise_1.c
 *
 *  Created on: Jan 6, 2021
 *      Author: Adrian Gomez
 *      SID:    20119988
 *      EECS 114
 */

#include <stdio.h>

int main (){
    printf("hello, world");
    return 0;
}
```



```
hello, world

...Program finished with exit code 0
Press ENTER to exit console.
```

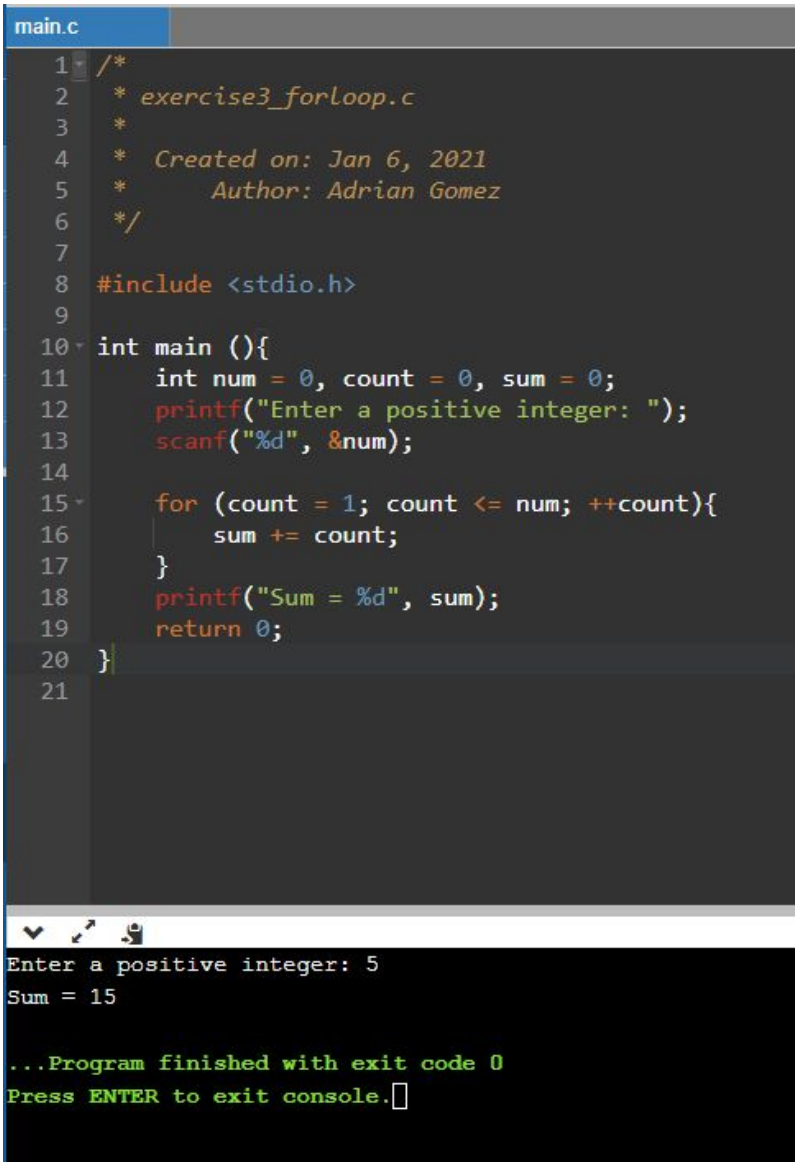
Exercise 3(If/Else) Result/ Simulation:

main.c

```c
/*
 * exercise3_if.c
 *
 *  Created on: Jan 6, 2021
 *      Author: Adrian Gomez
 *      SID: 20119988
 *      EECS 114
 */

#include <stdio.h>

int main(){
    int num;
    printf("Enter an integer:");
    scanf("%d", &num);
    if(num%2 == 0){
        printf("%d is an even integer.", num);
    }
    else{
        printf("%d is an odd number.", num);
    }
    return 0;
}

```

```
Enter an integer:5
5 is an odd number.

...Program finished with exit code 0
Press ENTER to exit console.
```

Exercise 3(For Loop) Result/ Simulation:



main.c

```c
/*
 * exercise3_forloop.c
 *
 *  Created on: Jan 6, 2021
 *      Author: Adrian Gomez
 */

#include <stdio.h>

int main (){
    int num = 0, count = 0, sum = 0;
    printf("Enter a positive integer: ");
    scanf("%d", &num);

    for (count = 1; count <= num; ++count){
        sum += count;
    }
    printf("Sum = %d", sum);
    return 0;
}

```

```
Enter a positive integer: 5
Sum = 15

...Program finished with exit code 0
Press ENTER to exit console.
```

Exercise 3(While) Result/ Simulation:

main.c

```c
/*
 * exercise3_while.c
 *
 *  Created on: Jan 6, 2021
 *      Author: signa
 */
#include <stdio.h>

int main(){
    int num;
    long long factorial;

    printf("Enter an integer: ");
    scanf("%d", &num);

    factorial = 1;
    while (num > 0){
        factorial *= num;
        --num;
    }
    printf("Factorial= %lld", factorial);
    return 0;
}
```

```
Enter an integer: 6
Factorial= 720

...Program finished with exit code 0
Press ENTER to exit console.
```

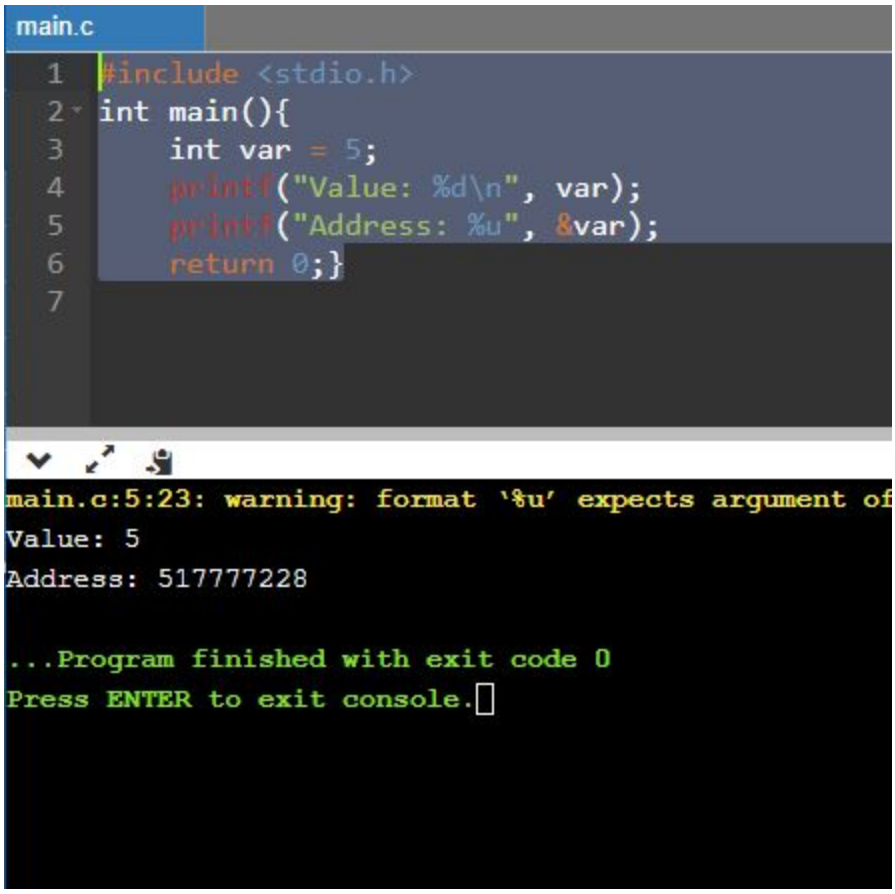
Exercise 3(Do-While) Result/ Simulation:

main.c

```c
/*
 * exercise3_do_while.c
 *
 *  Created on: Jan 6, 2021
 *      Author: Adrian Gomez
 */

#include <stdio.h>


int main(){
    double number, sum =0;
    do{
        printf("Enter a number: ");
        scanf("%lf", &number);
        sum += number;
    }while(number != 0.0);

    printf("Sum = %.2lf", sum);
    return 0;
}

```

```
Enter a number: 4
Enter a number: 4
Enter a number: 0
Sum = 8.00

...Program finished with exit code 0
Press ENTER to exit console.
```

Exercise 4(a) Result/ Simulation:



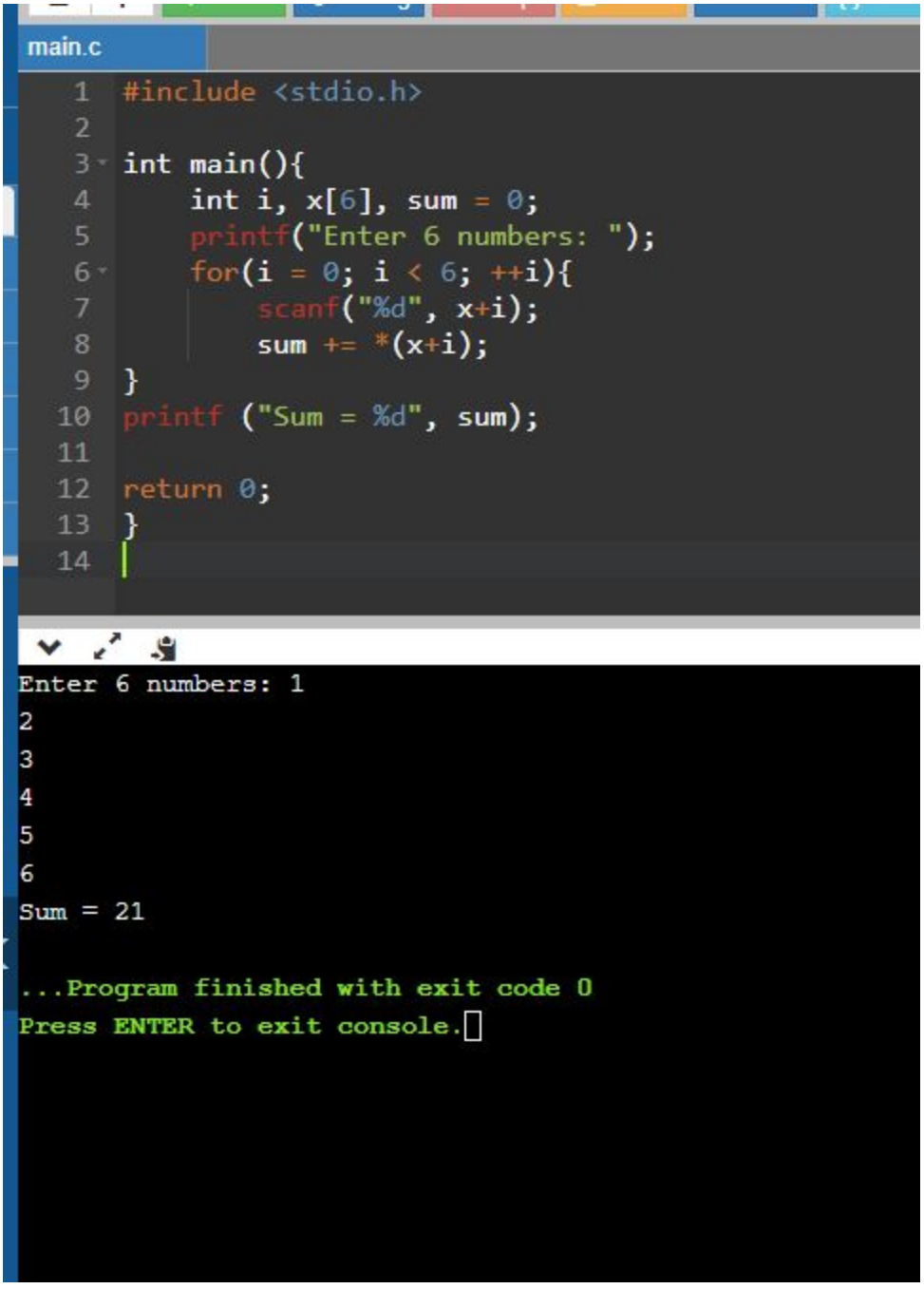
Exercise 4(b) Result/ Simulation:

main.c

```c
#include <stdio.h>
int main(){
    int* pc, c;

    c = 22;
    printf("Address of c: %u\n", &c);
    printf("Value of c: %d\n\n", c);

    pc = &c;
    printf("Address of pointer pc: %u\n", pc);
    printf("Content of pointer pc: %d\n\n", *pc);

    c = 11;
    printf("Address of pointer pc: %u\n", pc);
    printf("Content of pointer pc: %d\n\n", *pc);

    *pc = 2;
    printf("Address of c: %u\n", &c);
    printf("Value of c: %d\n\n", c);

    return 0;

}
```

```
main.c:6:28: warning: format '%u' expects argument of type 'unsigned int', but argume
main.c:10:37: warning: format '%u' expects argument of type 'unsigned int', but argu
main.c:14:37: warning: format '%u' expects argument of type 'unsigned int', but argu
main.c:18:28: warning: format '%u' expects argument of type 'unsigned int', but argu
Address of c: 1667610340
Value of c: 22

Address of pointer pc: 1667610340
Content of pointer pc: 22

Address of pointer pc: 1667610340
Content of pointer pc: 11

Address of c: 1667610340
Value of c: 2



...Program finished with exit code 0
Press ENTER to exit console.
```

Exercise 4(c) Result/ Simulation:



Exercise 4(d) Result/ Simulation:

main.c

```c
#include <stdio.h>
int main(){
    int x[5] = {1, 2, 3, 4, 5};
    int* ptr;
    ptr = &x[2];
    printf("*ptr = %d \n", *ptr);
    printf("*ptr+1 = %d \n", *ptr+1);
    printf("*ptr-1 = %d", *ptr-1);
    return 0;

}
```

```
*ptr = 3
*ptr+1 = 4
*ptr-1 = 2

...Program finished with exit code 0
Press ENTER to exit console.
```

Exercise 4(e) Result/ Simulation:

main.c

```c
#include <stdio.h>
void swap(int *n1, int *n2);
int main(){
    int num1 = 5, num2 = 10;
    swap(&num1, &num2);
    printf("num1 = %d\n", num1);
    printf("num2 = %d", num2);
    return 0;

}
void
swap(int* n1, int* n2){
    int temp;
    temp = *n1;
    *n1 = *n2;
    *n2 = temp;

}
```

```
num1 = 10
num2 = 5

...Program finished with exit code 0
Press ENTER to exit console.
```