Digital Design Verification

Lab # 01

GCC Compiler, GNU Debugger and Data Types

Submitted by:

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TASK # 01:

Code:

```c
/* Returns true if the length of PASSWORD is at least 10, false otherwise */
bool check_length(const char *password) {
    int length = strlen(password);
    bool meets_len_req = (length >= 10);
    return meets_len_req;
}
```

```c
/* Returns true if LETTER is in the range [LOWER, UPPER], false otherwise */
bool check_range(char letter, char lower, char upper) {
    bool is_in_range = (letter >= lower && letter <= upper);
    return is_in_range;
}
```

```c
/* Returns true if PASSWORD contains at least one number, false otherwise */
bool check_number(const char *password) {
    while (*password != '\0') {
        if (check_range(*password, '0', '9')) {
            return true;
        }
        ++password;
    }
    return false;

}
```

```c
/* Returns true if the person's first and last name are NOT in the password, false otherwise */
bool check_name(const char *first_name, const char *last_name, const char *password) {
    /* Type "man strstr" in your terminal to learn what strstr does!
       To exit the man pages, press 'q' */
    /* Hint: a NULL pointer will evaluate to False in a logical statement while a non-NULL pointer
       will evaluate to True */
    const char *first = strstr(password, first_name);
    const char *last = strstr(password, last_name);
    return (!first && !last);
}
```

Terminal output:

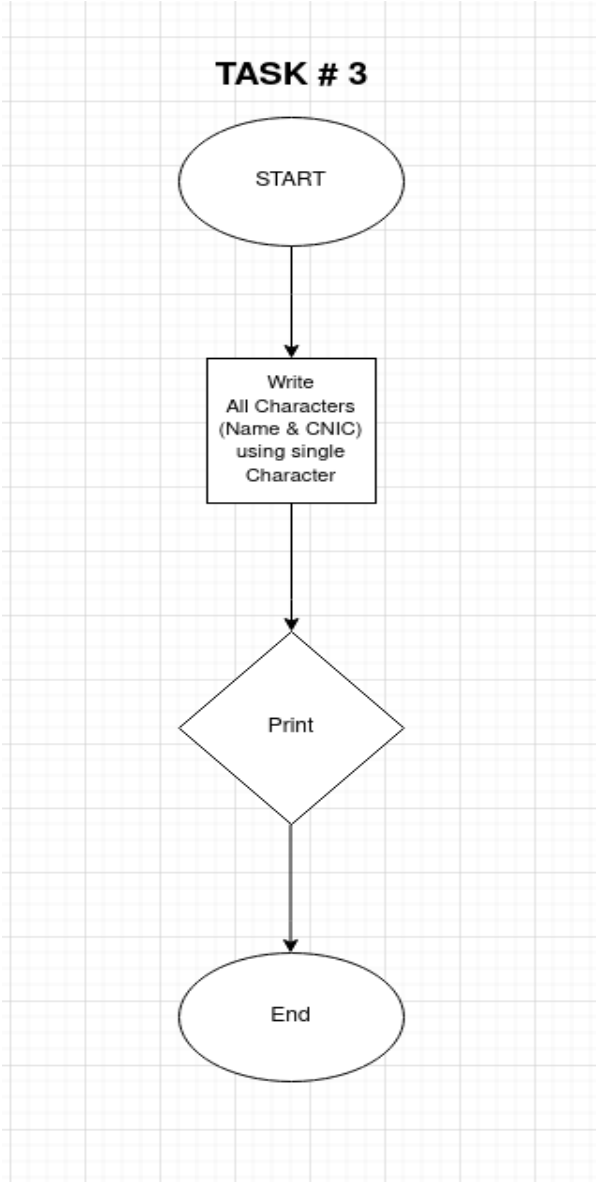
```
cc@ncdc-0087:~/Documents/KR/Lab1
File  Edit  View  Search  Terminal  Help
[cc@ncdc-0087 Lab1]$ gcc pwd_checker.c test_pwd_checker.c -o pwd_checker
pwd_checker.c: In function ‘check_name’:
pwd_checker.c:75:32: warning: passing argument 1 of ‘strstr’ makes pointer from
integer without a cast [-Wint-conversion]
     const char *first = strstr(*password, first_name);
                                ^~~~~~~~~
In file included from pwd_checker.c:1:
/usr/include/string.h:330:14: note: expected ‘const char *’ but argument is of t
ype ‘char’
 extern char *strstr (const char *__haystack, const char *__needle)
              ^~~~~~
[cc@ncdc-0087 Lab1]$ gcc pwd_checker.c test_pwd_checker.c -o pwd_checker
[cc@ncdc-0087 Lab1]$ gcc pwd_checker.c test_pwd_checker.c -o pwd_checker
[cc@ncdc-0087 Lab1]$
```

TASK # 02:

1. Integar
2. Float
3. Char
4. char
5. Float
6. Bool
7. Double Float
8. Integar
9. Float
10. Float
11. Int

TASK # 03:

Flow Chart:

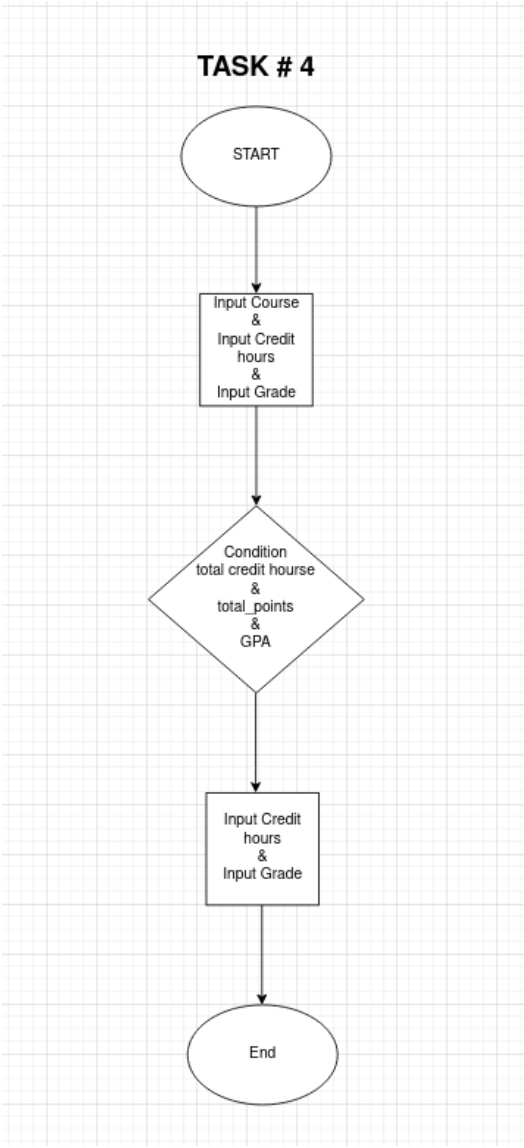


Terminal output:

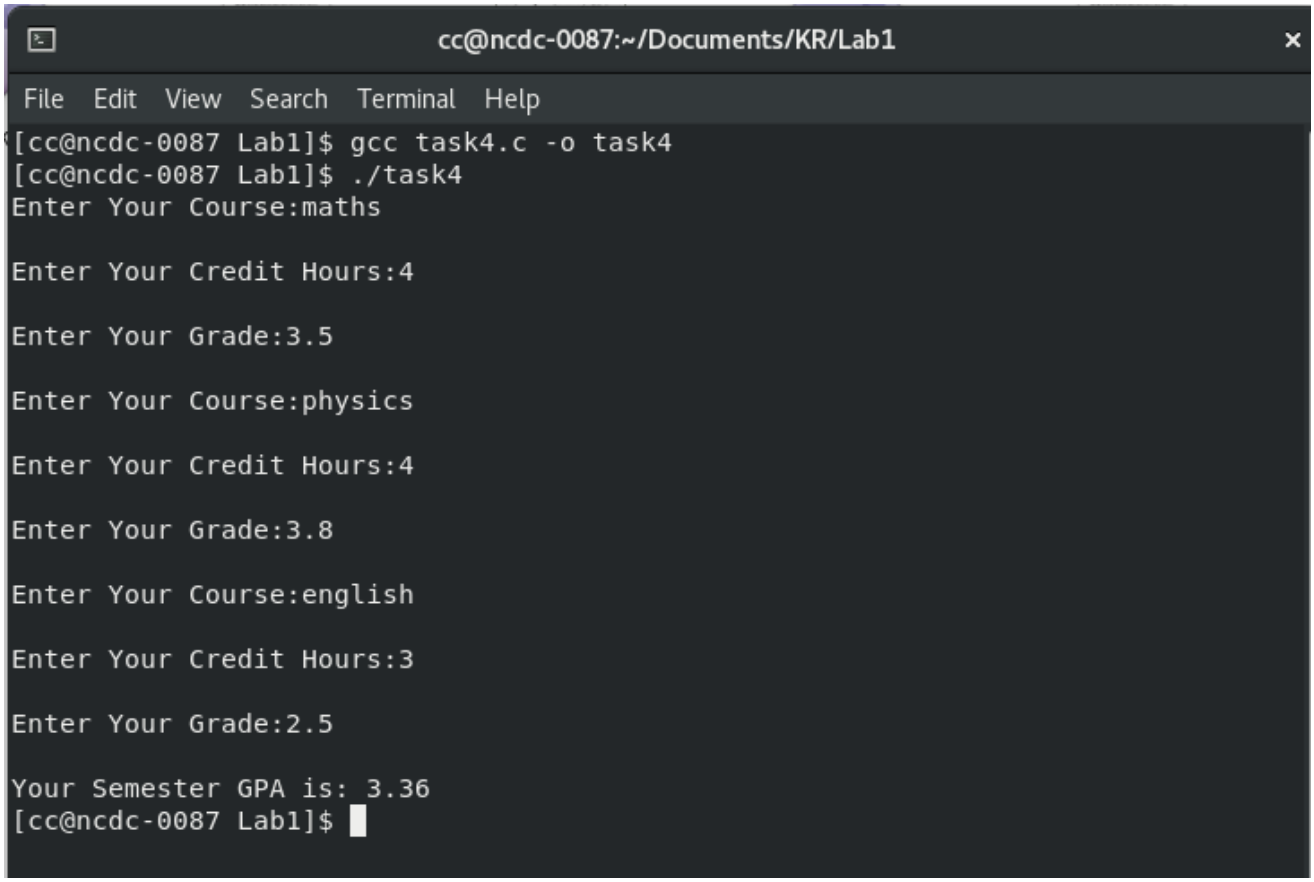
```
cc@ncdc-0087:~/Documents/KR/Lab1
File  Edit  View  Search  Terminal  Help
[cc@ncdc-0087 Lab1]$ gcc task3.c -o task3
[cc@ncdc-0087 Lab1]$ ./task3
Name: khalil CNIC: 24311
[cc@ncdc-0087 Lab1]$
```

TASK # 04:

Flow Chart:

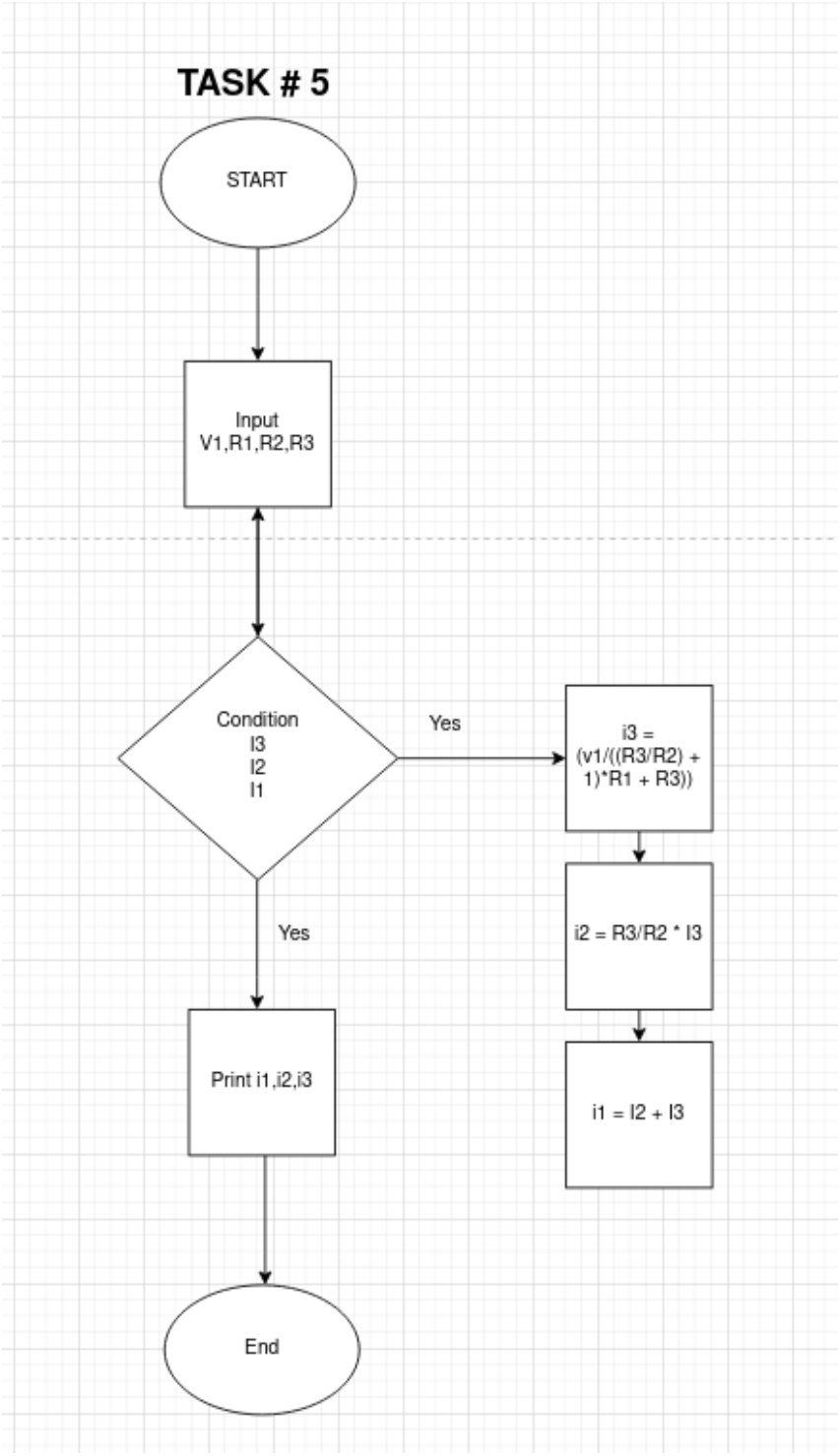


TERMINAL OUTPUT:

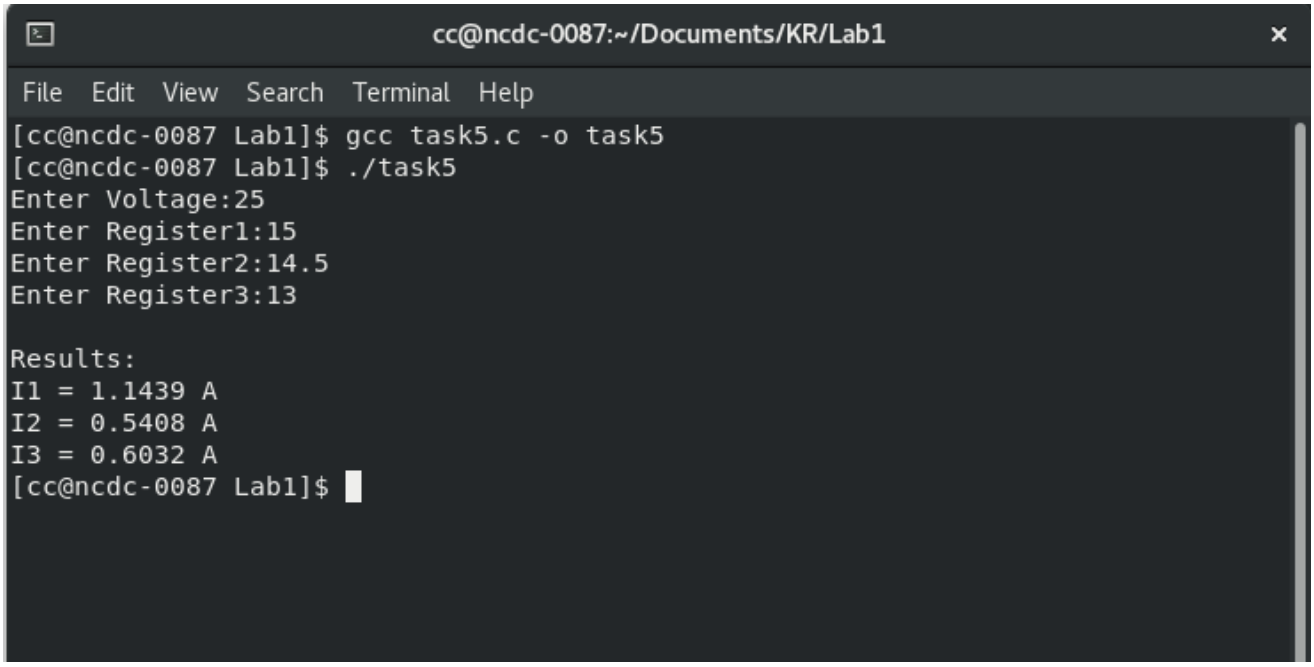


TASK # 05:

FLOW CHART:

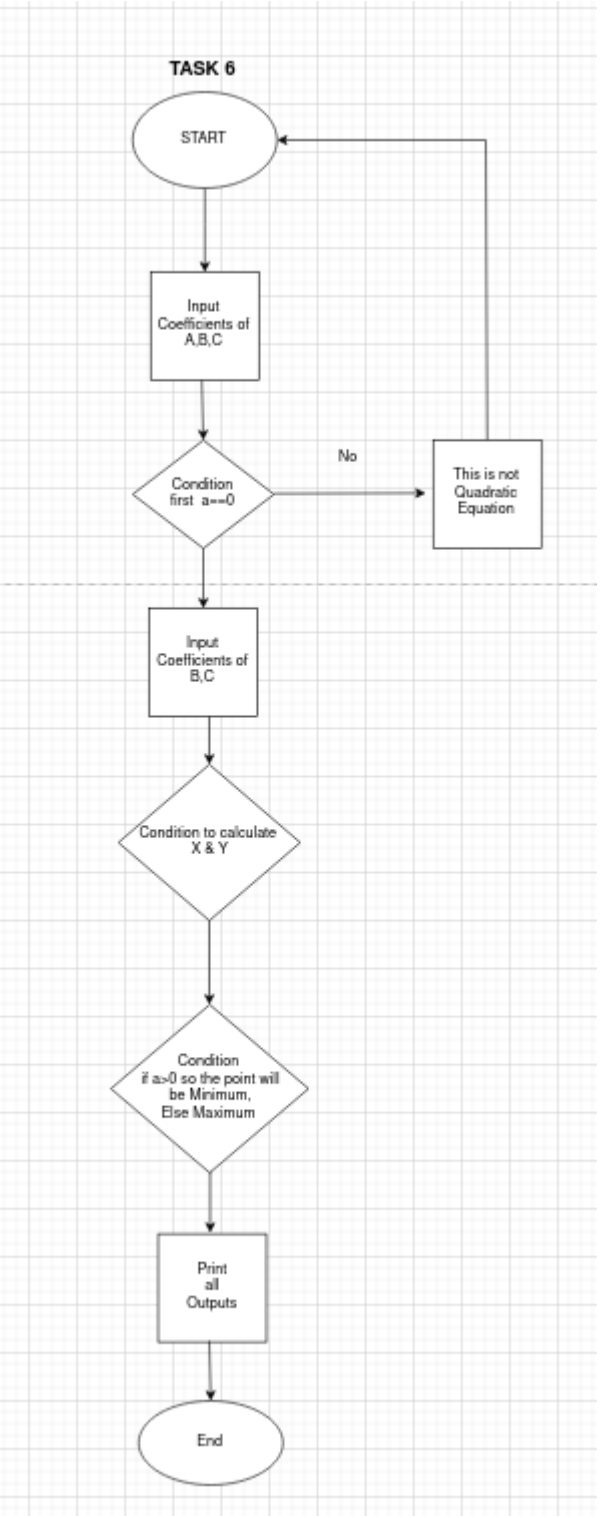


TERMINAL OUTPUT:



TASK # 06

FLOW CHART:


TASK 6
START
Input Coefficients of A,B,C
Condition first a==0
No
This is not Quadratic Equation
Input Coefficients of B,C
Condition to calculate X & Y
Condition if a>0 so the point will be Minimum, Else Maximum
Print all Outputs
End

TERMINAL OUTPUT: