CSE-016 Programming Lab Assignment № 4

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Solutions begin from the second page.

1   Problems

1.1   Problem (1)

Write a program to determine whether a given number is prime or not.

Example 1:

Enter a number: 13

13 is a prime number

Example 1:

Enter a number: 28

28 is not a prime number

1.2   Problem (2)

Write a program that uses looping to print the following table of values.

```
N          10*N        100*N       1000*N

1          10          100         1000
2          20          200         2000
3          30          300         3000
4          40          400         4000
5          50          500         5000
6          60          600         6000
7          70          700         7000
8          80          800         8000
9          90          900         9000
10         100         1000        10000
```

Contents

2 Solutions

2.1 Solution to Problem (1)

2.1.1 Source Code

<div align="center">Program's C code | Line numbers for readability</div>

```c
#include <stdio.h>
int main()
{
    int num, is_prime = 1, counter;
    printf("Enter a number: ");
    scanf("%d", &num);
    if (num < 2 || (num > 2 && num % 2 == 0))
    {
        is_prime = 0;
    } else {
        for (counter = 3; counter < num; counter = counter + 2)
        {
            if (num % counter == 0) { is_prime = 0; break; }
        }
    }
    if (is_prime)
    {
        printf("%d is a prime number\n", num);
    } else {
        printf("%d is not a prime number\n", num);
    }
    return 0;
}
```

PLEASE NOTE | 0 & 1 are not considered prime numbers by most contemporary mathematicians.

2.1.2 Outcome

Console Output

<div align="center">Program's output to console in plaintext – 13 as input</div>

```
Enter a number: 13
13 is a prime number
```

<div align="center">Program's output to console in plaintext – 28 as input</div>

```
Enter a number: 28
28 is not a prime number
```

2.2 Solution to Problem (2)

2.2.1 Source Code

Program's C code – uses `for` loop to print out table | Line numbers for readability

```c
#include <stdio.h>

int main()
{
    int n;
    printf("N\t10*N\t100*N\t1000*N\n\n");
    for (n=1; n<=10; n++)
    {
        printf("%d\t%d\t%d\t%d\n", n, n*10, n*100, n*1000);
    }
    return 0;
}
```

2.2.2 Outcome

Console Output

Program's output to console in plaintext

N	10*N	100*N	1000*N
1	10	100	1000
2	20	200	2000
3	30	300	3000
4	40	400	4000
5	50	500	5000
6	60	600	6000
7	70	700	7000
8	80	800	8000
9	90	900	9000
10	100	1000	10000

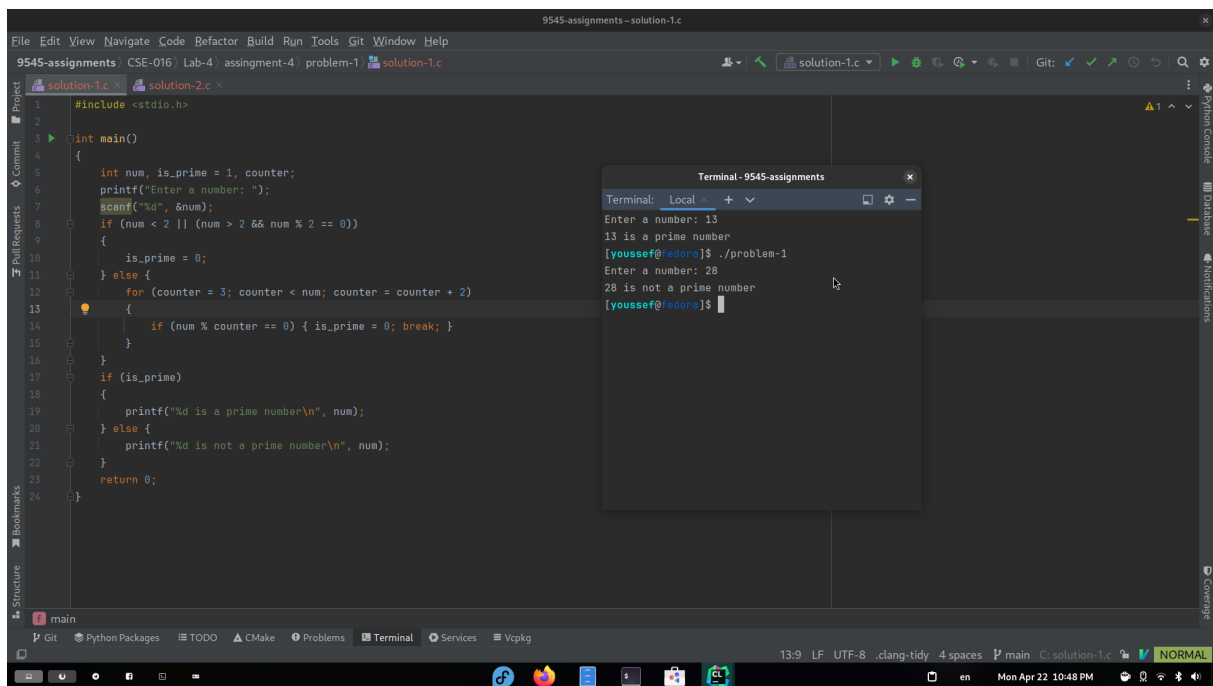## 2.3 Evidence of Work (Screenshots)

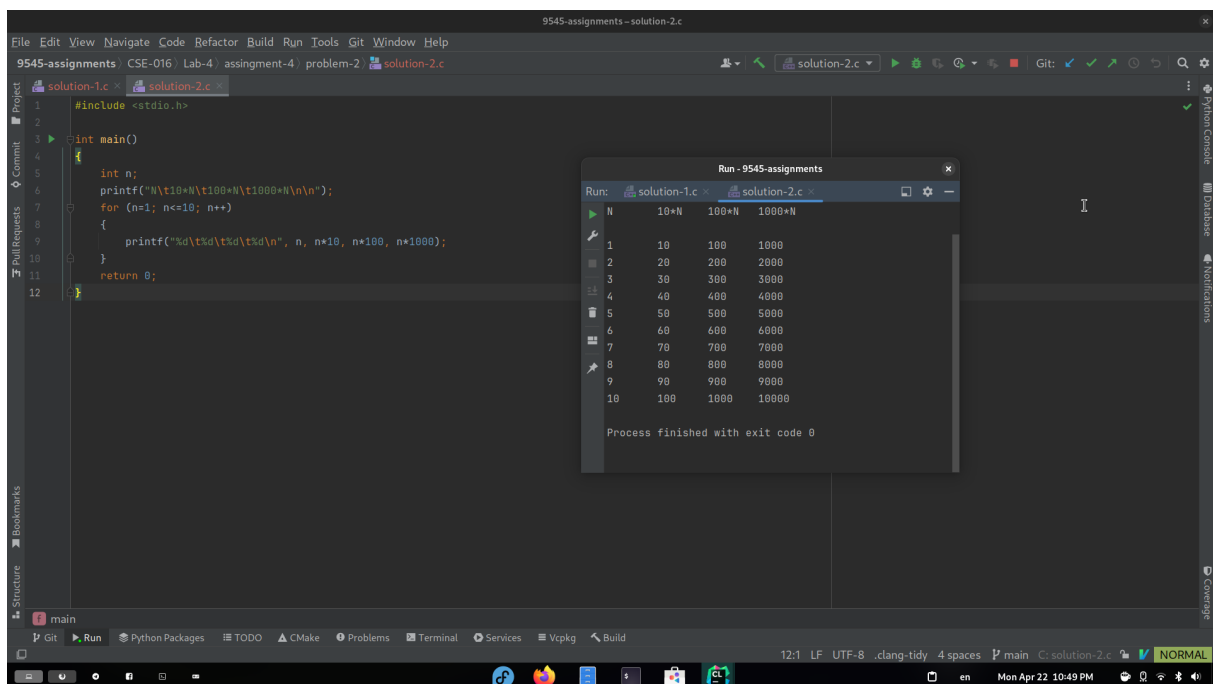Figure 1: Desktop screenshot of Problem (1)'s code in CLion

Figure 2: Desktop screenshot of Problem (2)'s code in CLion

2.4 Specifications

- **Libraries:**

  - `stdio.h`

- **Compiler:** GNU C Compiler (`gcc`) version 14.0.1 20240328 (Red Hat 14.0.1-0)

- **C Standard Compatibility**

P#	C89/C90	C99	C11	C17	C23
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓

- **Supported Platforms:** OS: (any), architecture: (any)

- **Tested On:** Fedora 40 Workstation Linux

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