COMPUTER SCIENCE ASSIGNMENT 3

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Branch: Electronics and Communication Engineering

Semester: 1st Semester

Roll No.: B25EC014

1.

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques1.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include<stdio.h>

int main(){

  char operator;
  int num1;
  int num2;
  int result;

  printf("Enter the first number:");
  scanf("%d", &num1);

  printf("Enter the second number:");
  scanf("%d", &num2);

  printf("Choose your operation:\n");
  printf("add(a), subtract(s), multiply(m), divide(d): ");
  scanf(" %c", &operator);

  switch(operator){

    case 'a':
      result = num1 + num2;
      break;

    case 's':
      result = num1 - num2;
      break;

    case 'm':
      result = num1 * num2;
      break;

    case 'd':
      result = num1 / num2;
      break;

    default:
      printf("ERROR: Invalid Input \n");
```

```
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```

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ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques1.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
    int num2;
    int result;

    printf("Enter the first number:");
    scanf("%d", &num1);

    printf("Enter the second number:");
    scanf("%d", &num2);

    printf("Choose your operation:\n");
    printf("add(a), subtract(s), multiply(m), divide(d): ");
    scanf(" %c", &operator);

    switch(operator){

      case 'a':
         result = num1 + num2;
         break;

      case 's':
         result = num1 - num2;
         break;

      case 'm':
         result = num1 * num2;
         break;

      case 'd':
         result = num1 / num2;
         break;

      default:
         printf("ERROR: Invalid Input \n");
    }

    printf("The result is: %d \n", result);

    return 0;
}
```

                                                                                          45,1   Bot

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques1.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques1
Enter the first number:2
Enter the second number:3
Choose your operation:
add(a), subtract(s), multiply(m), divide(d): m
The result is: 6
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

2.

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques2.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include<stdio.h>

int main() {

    int num1 = 0;
    int num2 = 1;
    int lenght;
    int sum;

    printf("Enter the terms in Fibonacci Series(more than 2): ");
    scanf("%d", &lenght);

    printf("0, ");
    printf("1, ");

    int i = 3;

    while(i <= lenght){

        sum = num1 + num2;
        num1 = num2;
        num2 = sum;

        printf("%d, ", sum);

        i++;
    }

    printf("\n");

    return 0;
}
```
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"ques2.c" [noeol] 32L, 379B   1,1   All

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~/Desktop/Coding/C/Assignment1Sem1/assignment3

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques2.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques2
Enter the terms in Fibonacci Series(more than 2): 10
0, 1, 1, 2, 3, 5, 8, 13, 21, 34,
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

3.

Sat Oct 11 17:34

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques3.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include<stdio.h>

int main(){

    int num;
    int original;
    int digit;
    int reverse = 0;

    printf("Enter the number: ");
    scanf("%d", &num);

    original = num;

    while(num!=0){

        digit = num%10;
        reverse = (reverse+digit)*10;
        num = num/10;
    }

    reverse = reverse / 10;

    if (original == reverse){
        printf("The number is a palindrome \n");
    }
    else {
        printf("The number is not a palindrome \n");
    }

    return 0;
}
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~
~
"ques3.c" [noeol] 32L, 440B                                                    1,1              All
```

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques3
Enter the number: 123454321
The number is a palindrome
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

4.

Sat Oct 11 17:35

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques4.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
//Convert Decimal to Binary

#include <stdio.h>
#include <math.h>

int main(){

  int decimal;
  int binary = 0;
  int remainder;

  printf("Enter the decimal no.: ");
  scanf("%d", &decimal);

  int i = 1;
  while (decimal != 0){

    remainder = decimal % 2;
    decimal = decimal / 2;

    binary = binary + (remainder * i);
    i = i * 10;
  }

  printf("%d \n", binary);

  return 0;
}
```
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"ques4.c" [noeol] 28L, 390B   1,1   All

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques4.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques4
Enter the decimal no.: 64
1000000
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

5.

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ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques5.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include <stdio.h>

int main(){

    int num;
    int isPrime = 0;

    printf("Enter a number to check if its prime:");
    scanf("%d", &num);

    int i = 2;
    while (i < num){

        if (num % i != 0){
            isPrime = 1;
        }
        else{
            isPrime = 0;
            break;
        }
        i++;
    }

    if (isPrime == 0){
        printf("The number is a composite number.\n");
    }
    else{
        printf("The nubmer is prime number. \n");
    }

    return 0;
}
```
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"ques5.c" [noeol] 32L, 428B   1,1   All

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques5.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques5
Enter a number to check if its prime:67
The nubmer is prime number.
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

6.

```c
#include <stdio.h>

int main(){

    int num = 2;
    int isPrime = 0;
    int count = 0;

    printf("All the prime numbers between 2 and 100: ");

    while (num <= 100){

        int i = 2;
        while (i < num){

            if (num % i != 0){
                isPrime = 1;
            }
            else{
                isPrime = 0;
                break;
            }
            i++;
        }

        if (isPrime == 1){
            printf("%d, ", num);
            count++;
        }

        num++;
    }

    printf("\nThe number of prime numbers are: %d \n", count);

    return 0;
}
~
~
"ques6.c" [noeol] 37L, 492B                                                1,1              All
```

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques6.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques6
All the prime numbers between 2 and 100: 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97,
The number of prime numbers are: 24
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

7.

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques7.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include <stdio.h>

int main() {

    int num = 10;

    int multiply = 10 << 1;
    int divide = 10 >> 1;

    printf("Multiplied by 2: %d \n", multiply);
    printf("Divided by 2: %d \n", divide);
}
```

"ques7.c" [noeol] 12L, 192B   1,1   All

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~/Desktop/Coding/C/Assignment1Sem1/assignment3

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques7
Multiplied by 2: 20
Divided by 2: 5
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

8.

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques8.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include <stdio.h>

int main() {

  char letter;
  char invertedLetter;

  printf("Enter a character: ");
  scanf("%c", &letter);

  //checks for capital letters (from 65 to 90)
  if (letter >= 65 && letter <= 90){
    invertedLetter = letter + 32;
    printf("The inverted letter is: %c \n", invertedLetter);
  }

  //checks for small letters (from 97 to 122)
  else if (letter >= 97 && letter <= 122){
    invertedLetter = letter - 32;
    printf("The inverted letter is: %c \n", invertedLetter);
  }

  //hadling errors
  else {

    //checks for special characters
    if (letter >= 32 && letter <= 47){
      printf("ERROR: The data is of special character type \n");
    }

    //checks for digits
    else if (letter >= 48 && letter <= 57) {
      printf("ERROR: the data is of digits / number type \n");
    }
    else {
      printf("ERROR: datatype not defined. \n");
    }
  }
  return 0;
```

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ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques8.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques8
Enter a character: t
The inverted letter is: T
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

9.

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques9.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include <stdio.h>

int main(){

  //part 1

  int i = 1;
  int j;

  while (i <= 5){

    j = i;
    while (j != 0){
      printf("*");
      j--;
    }

    printf("\n");
    i++;
  }

  printf("\n");

  i = 1;
  while (i <= 3){

    j = i;
    while (j != 0){
      printf("*");
      j--;
    }

    printf("\n");
    i++;
  }

  return 0;
}
~
"ques9.c" [noeol] 38L, 353B                                    38,1          All
```

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques9.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques9
*
**
***
****
*****

*
**
***
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

10.

Sat Oct 11 17:39

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques10.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include<stdio.h>

int main() {

    int numbers[10] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    int sum = 0;
    int avg;

    int i = 0;

    while (i < 10){
        sum = sum + numbers[i];
        i++;
    }

    avg = sum / 10;

    printf("SUM: %d \n", sum);
    printf("AVG: %d \n", avg);

    return 0;

}
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"ques10.c" [noeol] 23L, 279B                                                    1,1          All
```

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques10.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques10
SUM: 55
AVG: 5
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

11.

Sat Oct 11 17:40

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques11.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include <stdio.h>

int main(){

    int numbers[10] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    int search = 9;

    int i = 0;
    while (i < 10){

        if (i == search){
            break;
        }
        i++;
    }

    printf("The position of %d is [%d] \n", search, i);

    return 0;
}
```

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"ques11.c" [noeol] 20L, 260B   1,1   All

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques11.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques11
The position of 9 is [9]
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

12.

```c
#include <stdio.h>

int main(){

    int numbers[10] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    int min = 32767;
    int max = 0;

    int i = 0;
    while (i < 10){

        if (min > numbers[i]){
            min = numbers[i];
        }
        i++;
    }

    i = 0;
    while (i < 10){

        if (max < numbers[i]){
            max = numbers[i];
        }
        i++;
    }

    printf("The minimum number is: %d \n", min);
    printf("The maximum number is: %d \n", max);

    return 0;
}
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~
"ques12.c" [noeol] 31L, 431B                                    1,1          All
```

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques12.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques12
The minimum number is: 1
The maximum number is: 10
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

13.

```c
#include <stdio.h>

int main() {

    int num[10] = {43, 63, 55, 31, 16, 72, 16, 17, 23, 46};
    int temp;
    int i,j;

    //bubble sort

    j = 10;
    while(j != 0){
      i = 0;
      while (i <= j){

          if (num[i] < num[i+1]){

            temp = num[i];
            num[i] = num[i+1];
            num[i+1] = temp;
          }
        i++;
      }
      j--;
    }

    printf("{");

    i = 0;
    while (i < 10){

      printf("%d, ", num[i]);
      i++;
    }

    printf("} \n");

    return 0;
}
```
"ques13.c" [noeol] 39L, 469B   1,1   All

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques13.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques13
{72, 63, 55, 46, 43, 31, 23, 17, 16, 16, }
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```

14.

Sat Oct 11 17:41

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques14.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
#include <stdio.h>

int main() {

    int array1[5] = {3, 8, 4, 9, 20};
    int array2[5] = {1, 2, 15, 20, 27};

    int num[10];
    int temp;

    int j = 0;
    while (j < 5){
        num[j] = array1[j];
        j++;
    }

    while (j < 10){
        num[j] = array2[j-5];
        j++;
    }

    //num[10] has been made. merge complete.

    printf("{");

    int i = 0;
    while (i < 10){

        printf("%d, ", num[i]);
        i++;
    }

    printf("} \n");

    //bubble sort

    j = 10;
    while(j != 0){
        i = 0;
```

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ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3 — vim ques14.c
~/Desktop/Coding/C/Assignment1Sem1/assignment3

```c
    while (i < 10){

        printf("%d, ", num[i]);
        i++;
    }

    printf("} \n");

    //bubble sort

    j = 10;
    while(j != 0){
        i = 0;
        while (i <= j){

            if (num[i] < num[i+1]){

                temp = num[i];
                num[i] = num[i+1];
                num[i+1] = temp;
            }
            i++;
        }
        j--;
    }

    printf("{");

    i = 0;
    while (i < 10){

        printf("%d, ", num[i]);
        i++;
    }

    printf("} \n");

    return 0;
}
```

```
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ vim ques14.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$ ./ques14
{3, 8, 4, 9, 20, 1, 2, 15, 20, 27, }
{27, 20, 20, 15, 9, 8, 4, 3, 2, 1, }
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment3$
```