

# COMPUTER SCIENCE ASSIGNMENT 2

**Name:** Ruhul Amin

**Branch:** Electronics and Communication Engineering

**Semester:** 1<sup>st</sup> Semester

**Roll No.:** B25EC014

1. What is C language? Who developed C language?

**Answer:**

C is general-purpose, high-level programming language that also provides low-level features, making it very powerful for systems programming.

C was developed in the early 1970s by Dennis Ritchie at Bell Labs (AT&T, USA).

2. What do you mean by low level, middle level and high level language? Give example for each.

**Answer:**

Low-level language: Closer to machine code, hard for humans, but very fast and hardware-specific. Example: Assembly language.

Middle-level language: Bridges gap between low and high level. Can do system-level tasks (like hardware access) and application-level tasks. Example: C.

High-level language: Easy for humans to read/write, abstracted from hardware, portable across systems. Example: Python, Java, etc

3. Short note on structure oriented, object oriented and non-structure oriented programming language?

**Answer:**

Non-structured language: They have no clear program structure, uses jumps (like goto), harder to manage for large programs. For example: BASIC, Assembly, etc.

Structure-oriented language: Programs are divided into functions/modules, uses control structures (loops, if-else), easier to read and maintain. For example: C, Pascal, etc.

Object-oriented language: Based on objects (data + functions together), supports concepts like classes, inheritance'

4. What do you mean by compiler, assembler, and interpreter?

**Answer:**

Compiler: Translates the whole program (from high level to machine code) at once. Fast execution, but errors are shown after full compilation.

Assembler: Converts assembly language into machine code.

Interpreter: Translate and executes program line by line. Slower, but errors are shown immediately.

5. What is the only function all C programs must contain? What punctuation is used to signal the beginning and end of code blocks? What punctuation ends most lines of C code?

**Answer:**

main() is the function that all c programs must contain. {} is used to begin and end any code block. Most statements ends with ':' in c code.

6. What is data type? What is the size (no of bytes) of int, float and char data type?

**Answer:**

A data type is the type of data a variable can store.

int and float has a size of 4 bytes while char has size of 1 byte.

7. Is C programming language, structure oriented or procedure oriented language?

**Answer:**

C is a procedure-oriented programming language.





18. What do you mean by derived data type? What is local and global variable in C?

**Answer:**

Data types derived from basic data types, such as arrays, pointers, structures and unions are known as derived data type.

Local variable are the variables declared inside a function or block, accessible only within that function. Global variable are declared outside functions and are accessible throughout the program.

19. What is enum in C?

**Answer:**

It is a user-defined data type in C type in C that assigns names to a set of integer constants for better code readability.

20. What is an operator and operand?

**Answer:**

An operator refers the special symbols that are used in C to perform a certain action between two values or operand. Operand is the value on which that certain action is performed on.

21. What is the use of " #define " in C ?

**Answer:**

**#define** is used to create constants or macros to make the code easier to read and maintain.

22. What is an endless loop?

**Answer:**

An endless loop is a loop which keeps on running until the memory runs out because of logical error.

23. What are control statements?

**Answer:**

Control statements are used to check certain conditions defined by the programmer and execute tasks based on whether the conditions were met or not











42. Value of c after the following expression (initializations a = 1, b = 2, c = 1):

```
c += (-c) ? a : b;
```

**Answer:**

Since -c = -1 which is not 0 it returns a value of 1. now c = c + a will be executed, giving us the value of c = 2.

43. What is the type of the below assignment expression if x is of type float, y is of type int?

```
y = x + y;
```

**Answer:**

x + y will give a float value but since it is been assigned to a int data type so only the integer part would be assigned to y.

44. Find the error in the following programs

a.

```
int main() {
    char ch;
    int i;

    scanf("%c", %i);
    scanf("%d", &ch);

    printf("%c %d", ch, i);

    return 0;
}
```

**Answer:**

ERROR: scanf("%d", %i);

FIX: scanf("%d", &i);

b.

```
#include<stdio.h>
```

```
int main():
```

```
void main(){  
    printf("Okay");  
}
```

**Answer:**

ERROR: int main():

FIX: int main(){

ERROR: void main(){

FIX: removed

c.

```
int main() {  
    int x = 10;  
    static int y = x;  
  
    if(x == y)  
        printf("Equal");  
    else if(x > y)  
        printf("Greater");  
    else  
        printf("Less");  
  
    getchar();  
  
    return 0;  
}
```

**Answer:**

ERROR: static int y = x;

FIX: int y = x;

## Answer :

```

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ vim q45.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ ./q45
0

```

A screenshot of a terminal window with a dark background. The title bar at the top shows the date and time as 'Sep 24 3:17 PM' and the current command as 'ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2 — vim q46.c'. The terminal content shows a C program being edited in vim. The code is as follows:

```
#include <stdio.h>
void main()
{
    int a = 3;
    int b = ++a + a++ + --a;
    printf("Value of b is %d", b);
}
```

The cursor is positioned at the end of the closing brace of the main function. At the bottom of the terminal, the status bar displays '"q46.c" [noeol] 7L, 101B' on the left and '1,1 All' on the right.

```
Sep 24 3:17 PM
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ vim q46.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ ./q46
Value of b is 13ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$
```



























```
Sep 24 3:29 PM
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2
~/Desktop/Coding/C/Assignment1Sem1/assignment2
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ vim q58.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ ./q58
yes, Get inruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$
```

59.

```
Sep 24 3:29 PM
Sep 24 3:30 PM
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2
~/Desktop/Coding/C/Assignment1Sem1/assignment2
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ vim q59.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ ./q59
Hairuhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$
```

60.









```
Sep 24 3:35 PM
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2 — vim q64.c
~/Desktop/Coding/C/Assignment1Sem1/assignment2

printf("--FAST FOOD MENU-- \n");
printf("Please choose one of the following: \n");
printf("1. B = Burger \n2. F = French Fries \n3. P = Pizza \n4. S = Sandwiches \n \n");

printf("Enter number of dishes you want to enter: ");
scanf("%d", &noOfDish);

while(i < noOfDish){

    printf("Enter your choice(B/F/P/S): ");
    scanf(" %c", &item);

    printf("Enter the number of %c: ", item);
    scanf(" %d", &noOfItem);

    if (item == 'B'){
        sum = sum + 200 * noOfItem;
    }
    else if(item == 'F'){
        sum = sum + 50 * noOfItem;
    }
    else if(item == 'P'){
        sum = sum + 500 * noOfItem;
    }
    else if(item == 'S'){
        sum = sum + 15 * noOfItem;
    }
    else{
        printf("ERROR: Invalid statement \n");
    }

    i++;

}

printf("Total price: %d \n", sum);

return 0;
```

48,1 Bot

```
Sep 24 3:36 PM
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2
~/Desktop/Coding/C/Assignment1Sem1/assignment2

ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ vim q64.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ ./q64
--FAST FOOD MENU--
Please choose one of the following:
1. B = Burger
2. F = French Fries
3. P = Pizza
4. S = Sandwiches

Enter number of dishes you want to enter: 4
Enter your choice(B/F/P/S): B
Enter the number of B: 1
Enter your choice(B/F/P/S): F
Enter the number of F: 1
Enter your choice(B/F/P/S): P
Enter the number of P: 1
Enter your choice(B/F/P/S): S
Enter the number of S: 2
Total price: 1080
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$
```











```
Sep 24 3:44 PM
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2
~/Desktop/Coding/C/Assignment1Sem1/assignment2
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ vim q69.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ ./q69
2ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$
```

70.

```
Sep 24 3:44 PM
Sep 24 3:44 PM
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2
~/Desktop/Coding/C/Assignment1Sem1/assignment2
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ vim q70.c
ruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$ ./q70
TRUEruhulamin@fedora:~/Desktop/Coding/C/Assignment1Sem1/assignment2$
```