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**C Language Assignment 1**

1). Computers understand only binary language because it is made up of hardware which consists of RAM, ROM, processor, hard disk, etc. It is very easy to represent any hardware in two states as to represent in more than two states. As we know binary language written in only 0’s and 1’s.

2). The full form of IDE is Integrated Development Environment.

3). Difference between text editor and code editor are given below:

|  |  |
| --- | --- |
| Text Editor | Code Editor |
| Text editor is a space where a user can write any text in any language in English, Hindi, Programming language, etc. | Code editor is a space where a user or programmer can write their programs in any programming language to build software. |
| Examples of text editor are notepad, MS word, etc. | Examples of code editor is Vs code, etc. |

4). The two steps to develop software using the C language are

i) **Create a source file** :- This file is written in c language where source code is available.

ii) **Build software** :-This includes preprocessor, complier, linker. Compiler translates the source code into object code and it saves the file in .o file. Linker links the object code with needful library code and it saves the linked machine code in .exe file.

5).

a). C 17 is the latest version of C language.

b). Denis Ritchie developed C language.

c).

|  |  |
| --- | --- |
| System software | Application software |
| System software maintains the computer resources and also provides a path for application software to run. | Application software enables users to perform specific tasks. |
| It is written in low-level languages. | It is written in high-level languages, such as c++ and java. |
| A computer cannot run without system software. | A computer can run without application software. |
| It does not depend on application software. | It cannot run without system software. |

d). Decimal number system to a binary number system

**Step 1:** Divide the given decimal number by 2 and note down the remainder.

**Step 2**: Now, divide the obtained quotient by 2, and note the remainder again.

**Step 3:** Repeat the above steps until you get 0 as the quotient.

**Step 4:** Now, write the remainders in such a way that the last remainder is written first, followed by the rest in the reverse order.

**Step 5:** This can also be understood in another way which states that the Least Significant Bit (LSB) of the binary number is at the top and the Most Significant Bit (MSB) is at the bottom. This number is the binary value of the given decimal number.

Let us take an example to understand clearly

**Example:** Convert the decimal number 1310 to binary.

**Solution:** We will start dividing the given number (13) repeatedly by 2 until we get the quotient as 0. We will note the remainders in order.

|  |  |  |
| --- | --- | --- |
| Division by 2 | Quotient | Remainder |
| 13 ÷ 2 | 6 | 1(LSB) |
| 6 ÷ 2 | 3 | 0 |
| 3 ÷ 2 | 1 | 1 |
| 1 ÷ 2 | 0 | 1(MSB) |

After noting the remainders, we will write them in such a way that the Most Significant Bit (MSB) of the binary number is written first, followed by the rest.

Therefore, the binary equivalent for the given decimal number 1310 is 11012. This means that 1310 = 11012.