# Assignment-1

**1. Why do computers understand only binary language?**

**Ans**: Computers can't understand words or numbers the way humans communicate. It uses binary to store data. Binary is a base 2 number system. Base 2 means there are only two digits 1 and 0 which correspond to the on and off states your computer can understand. Actually, computer's main memory (RAM) consists of transistors that switch between high and low voltage levels sometimes 5V, sometimes 0. That reading is done by the computer's processor which reads the transistor state high or low to control the computer's other devices, according to software instructions.

**2. What is the full form of IDE?**

**Ans**: IDE stands for Integrated Development Environment. It is a programming environment that that combines common developer tools i.e., code editor, compiler, debugger into a single graphical user interface (GUI).

**3. What is the difference between a text editor and a code editor?**

**Ans**: The difference between a text editor and a code editor is given below

**Text editor:** A text editor just display plain text in one colour (black on white, usually, often with monospaced font), with more or less advanced facilities (search, replace, perhaps with regexes, macros / automation, etc.).

**Code editor:** A code editor can assist in writing software code with features such as syntax highlighting with visual cues, providing language specific auto-completion, and checking for bugs as code is being written.

**4. Explore by your own**

   **1.What is the latest version of C Language?**

   **Ans**: C17 is the current standard for the C programming language Published in June 2018 as ISO/IEC 9899:2018. It introduces no new language features, only technical corrections, and clarifications to defects in C11.

   **2.Who developed C Language?**

   **Ans**: C language was developed in the early 1970s by American computer scientist Dennis M. Ritchie at Bell Laboratories.

   **3.What is the difference between System and Application Software?**

   **Ans**: The system software is used for operating computer hardware. On the other hand, Application software are installed according to user's requirements. The difference between these two is given in tabular form below

| System Software | Application Software |
|---|---|
| **1.** This acts as an interface between the system and the applications | **1.** This is designed directly from the user perspective |
| **2.** It is the platform that allows the various application software to run on the system | **2.** These are independent applications which can be download and installed in the system |
| **3.** System Software is generally developed in low-level languages. This is so that the interaction between the software and hardware can be simplified and made more compatible | **3.** Each application has a specific purpose and thus is developed with high-level languages so that the purpose can be fulfilled |
| **4.** Is working is more automated. Once a system is turned on, the system software starts working | **4.** User action is required to start application software. These applications can only be work when the user commands the system to do so |
| Example for System Software includes Android, Mac Operating system, MS Windows, etc. | Examples of Application Software includes Word Processor, games, media player, etc. |

**4.How to convert a number from a decimal number system to a binary number system?**

**Ans**: To convert numbers from decimal to binary, the given decimal number is divided repeatedly by 2 and the remainders are noted down till we get 0 as the final quotient. 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.

Let us take an example to understand this conversion

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

Therefore, the binary equivalent for the given decimal number 13 is 1101

$$\text{i.e; } 13_{10} = 1101_2$$