1. **Research and provide three real-world applications where c programming is extensively used, such as in embedded systems, operating systems, or game development.**

* Explain in below
* Embedded Systems
* What it is  
  Embedded systems are small computing devices inside larger systems, like washing machines, microwaves, smartwatches, or automotive control systems.
* Why C is used
* Fast and efficient
* Direct access to hardware (via pointers)
* Small memory footprint
* Example
* Programming the firmware of a microcontroller in a digital thermometer or a car's airbag system.
* Operating Systems
* What it is:  
  Operating systems manage hardware and software resources on a computer or device.
* Why C is used:
* Low-level control over system resources
* Portability (C code can run on many types of hardware)
* High performance
* Example
* UNIX, Linux, Windows kernel components are largely written in C.
* Game Development
* What it is  
  Game engines are the frameworks used to build games.
* Why C is used
* High performance for real-time gaming
* Better memory management
* Close control over CPU/GPU resources
* Example
* Parts of game engines like Unity or Unreal Engine use C/C++ under the hood.
* 2D games for handheld consoles often use pure C.

1. **Install a C compiler on your system and configure the IDE. Write your first program to print “Hello World” and run it.**

* Steps below:

Step 1: Install a C Compiler

* For Windows
* Install Code::Blocks (comes with the GCC compiler):

1. Download from: https://www.codeblocks.org/downloads/
2. Choose the version with MinGW included.
3. Install and open Code::Blocks.

Step 2: Configure the IDE

* Use any IDE of your choice:
* Code::Blocks (easy setup)
* Visual Studio Code
* Install extensions: C/C++ (by Microsoft) and Code Runner
* Set up tasks to compile using GCC
* Dev C++ (for Windows, beginner-friendly)

Step 3: Write Your First C Program

* Create a new file called hello.c and write:

#include<stdio.h>

Main ()

{

Printf (“Hello World”);

}

Step 4: Compile and Run the Program

* Using IDE
* Click Build & Run or Run in your IDE (like Code::Blocks).
* Output will show:

“Hello World”