Research work 3

1. What is IDE and complier list out differences

An IDE typically contains a code editor, a compiler or interpreter, and a debugger, accessed through a single graphical user interface (GUI). The user writes and edits source code in the code editor.
The compiler translates the source code into a readable language that is executable for a computer. A compiler is a special program that translates a programming language's source code into machine code, bytecode or another programming language.

Sr.no	IDE	complier
1.	Is is a full-fledged software environment that consolidate basic developer tools required to build and test software	compiler is a special program that converts the source code to executable machine code.
2.	it has features such as source code formatting, error diagnostics, and intelligent code completion, reporting.	The programmer can run the appropriate language compiler according to the programming language used to write the source code.
3.	Examples net beans ellipse Microsoft visual studio and code blocks	example JNU GCC

2. Bootloader and its working-
   A boot loader is a type of program that loads and starts the boot time tasks and processes of an operating system or the computer system.
   Working-
   bootloaders is used as a separate program in the program memory that executes when a new application needs to be reloaded into the rest of program memory. The bootloader will use a serial port, USB port, or some other means to load the application.

3. OTA-
   An over-the-air (OTA) update is the wireless delivery of new software, firmware or other data to mobile devices. It is a wireless technology used to: communicate with a SIM card, download applications to a SIM card,; and manage a SIM card.

4. Difference between BareMetal and RTOS-

SR.NO	BareMetal	RTOS
1.	Bare metal is also known as super loop embedded systems. Because there will be a single loop and we write every task code inside this super loop except interrupts.	RTOS based embedded systems, every task is scheduled according to a specific period and aperiodic/sporadic tasks can also be scheduled easily.
2.	BareMetal programming is programming without an operating system to provide system level services.	RTOS-based embedded systems use an operating system kernel with scheduler or device drivers between hardware and application code.

5. how to choose between bare metal and RTOS for project

   In general, you need bare-metal programming when It means microcontroller programming, which is totally independent of any OS.
   RTOS used when there a lot of tasks, lots of desktop-style I/O, or a sophisticated user interface.