Introduction to Arduino IDE

Arduino IDE is an open source software that is mainly used for writing and   compiling the code into the Arduino Module.
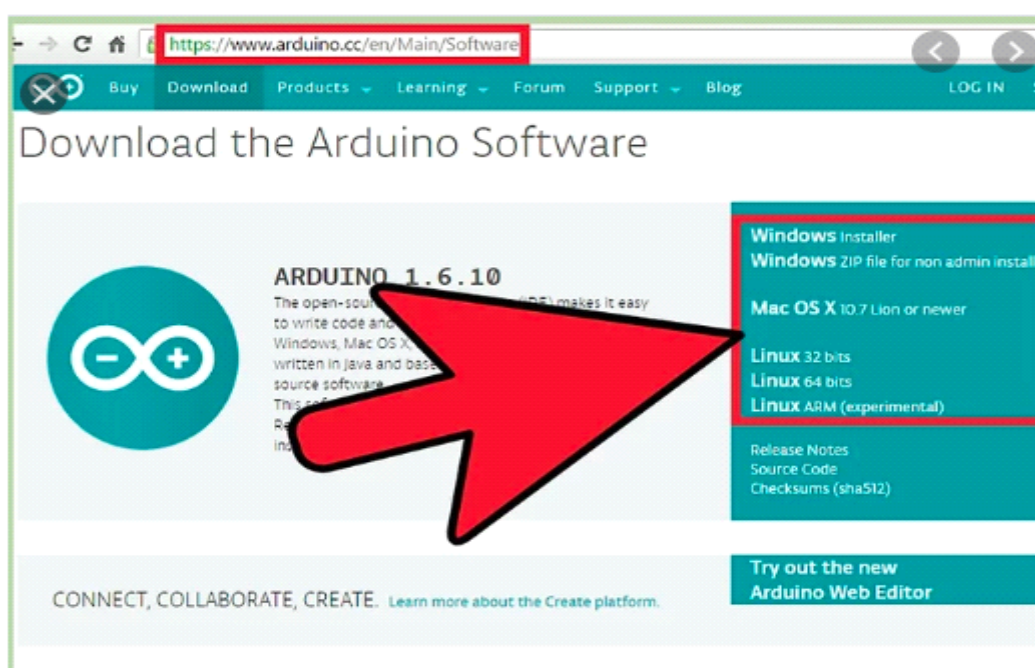
It is an official Arduino software, making code compilation too easy that even a common person with no prior technical knowledge can get their feet wet with the learning process

It is easily available for operating systems like Windows, Linux and runs on   the Java Platform that comes with inbuilt functions and commands that play a vital role for debugging, editing and compiling the code in the environment.

A range of Arduino modules available including Arduino Uno, Arduino Mega, Arduino Leonardo, Arduino Micro and many more.

Installation of the Arduino IDE

- Download Arduino IDE from https://www.arduino.cc/en/Main/Software

- Browse https://www.arduino.cc/en/Main/Software
- Download and unzip https://www.arduino.cc/download.php?f=/arduino-nightly-windows.zip
- Run arduino.ex
- Connect the Arduino board (e.g. genuino uno) to pc through usb
- In the main menu IDE
  - In menu IDE: Use "tool/port" to see the port , select the port. e.g. port6(arduino/genuino uno)
  - In menu IDE : File /example/o.1 basic/blink

- Copy the source to the main sketch window (program editor screen)
- Use the Sketch/verify/compile to compile the program.
- Use upload on the menu bar to upload the program to your board.
- The IDE is divided into three main areas:
    - Menu Bar
    - Text Editor
   - Console/message window area

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File - You can open a new window for writing the code or open an existing one. The number of further subdivisions the file option is categorized into.

- **NEW:** This is used to open a new text editor window to write your code.
- **OPEN:** Used for opening the existing written code.
- **OPEN RECENT:** The option reserved for opening recently closed programs.
- **SKETCHBOOK:** It stores the list of codes you have written for your project.
- **EXAMPLES:** Default examples already stored in the IDE software.
- **CLOSE:** Used for coding the main screen window of the recent tab. If two tabs are open, it will ask you again as you aim to close the second tab.
- **SAVE:** it is used to save the recent program.
- **SAVE AS:** It will allow you to save the recent program in your desired folder.
- **PAGE SETUP:** it is used for modifying the page with portrait and landscape options, some default page options are already given from which you can select the page you intend to work on.
- **PRINT:** It is used for printing purposes and will send command to the printer.

- **PREFERENCES:** It is a page with a number of preferences you aim to set up for your text editor page.
- **QUIT:** It will quit the whole software all at once.
- **Edit** – Used for copying and pasting the code with further modification for font
- **Sketch** – For compiling and programming
- **Tools** – Mainly used for testing projects. The Programmer section in this panel is used for burning a bootloader to the new microcontroller.
- **Help** – In case you are feeling skeptical about software, complete help is available from getting started to troubleshooting.
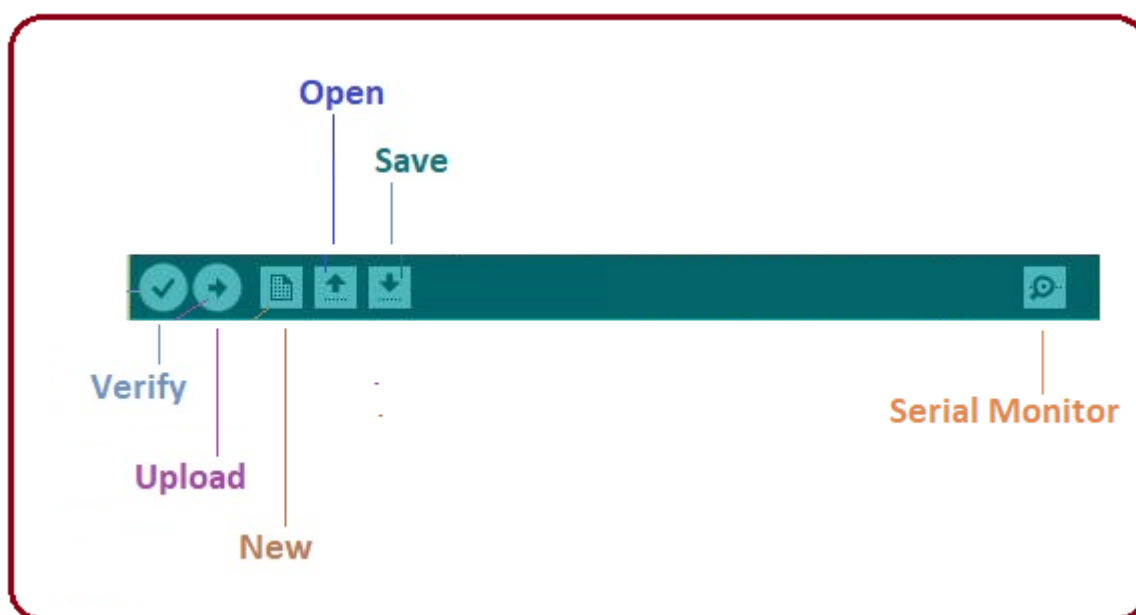
- The tick mark appearing in the circular button is used to verify the code. Click this once you have written your code.
- The arrow key will upload and transfer the required code to the Arduino board.
- The dotted paper is used for creating a new file.
- The upward arrow is reserved for opening an existing Arduino project.
- The downward arrow is used to save the current running code.

The button appearing on the top right corner is a **Serial Monitor** – A separate pop-up window that acts as an independent terminal and plays a vital role for sending and receiving the Serial Data. You can also go to the Tools panel and select Serial Monitor, or pressing Ctrl+Shift+M all at once will open it instantly. The Serial Monitor will actually help to debug the written Sketches where you can get a hold of how your program is operating. Your Arduino Module should be connected to your computer by USB cable in order to activate the Serial Monitor.

You need to select the baud rate of the Arduino Board you are using right now. For my Arduino Uno Baud Rate is 9600, as you write the following code and click the Serial Monitor, the output will show as the image below.
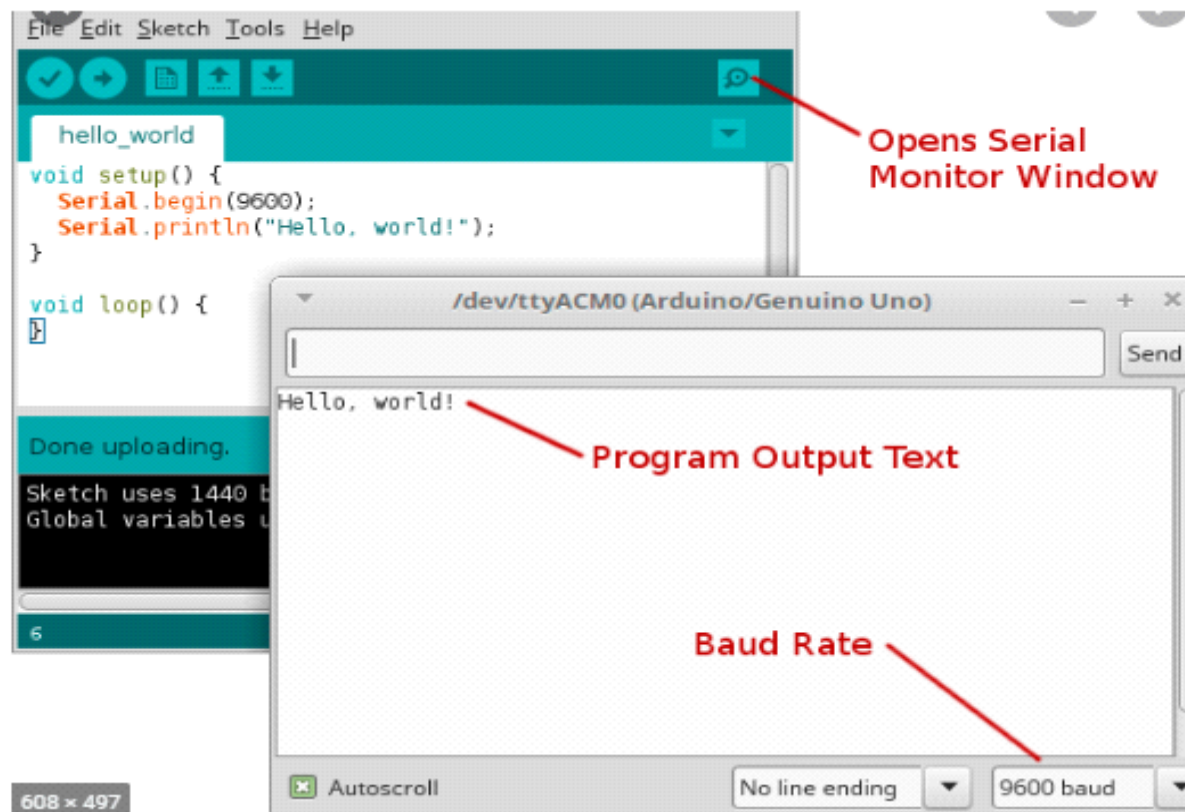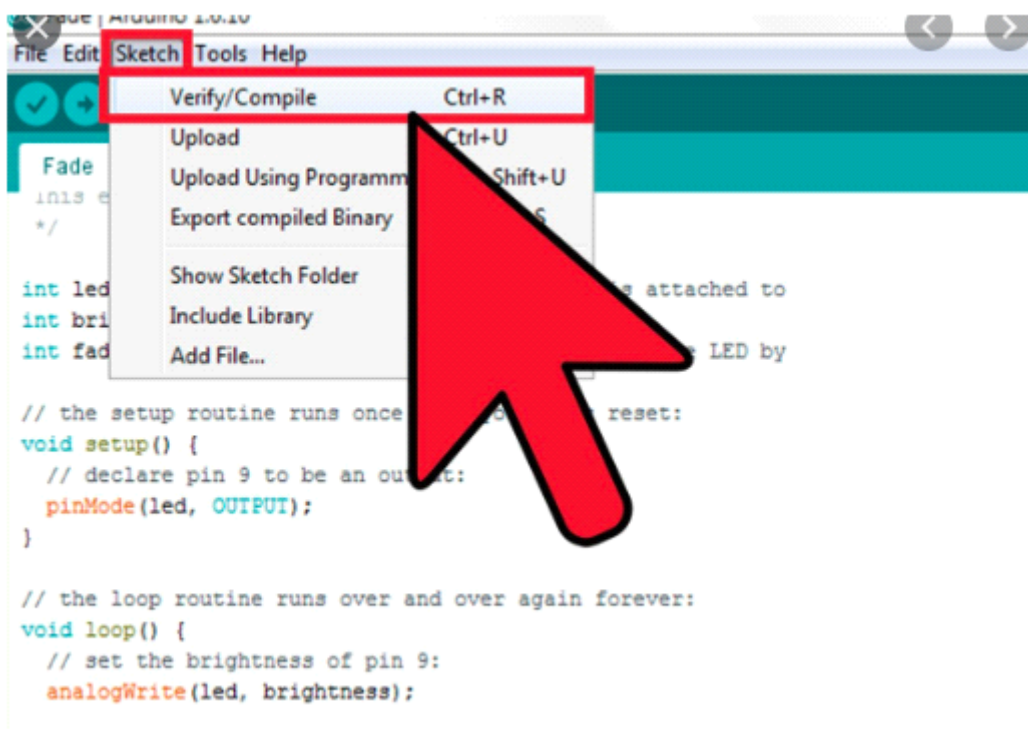
Libraries

Libraries are very useful for adding the extra functionality into the Arduino Module. There is a list of libraries you can add by clicking the Sketch button in the menu bar and going to Include Library.
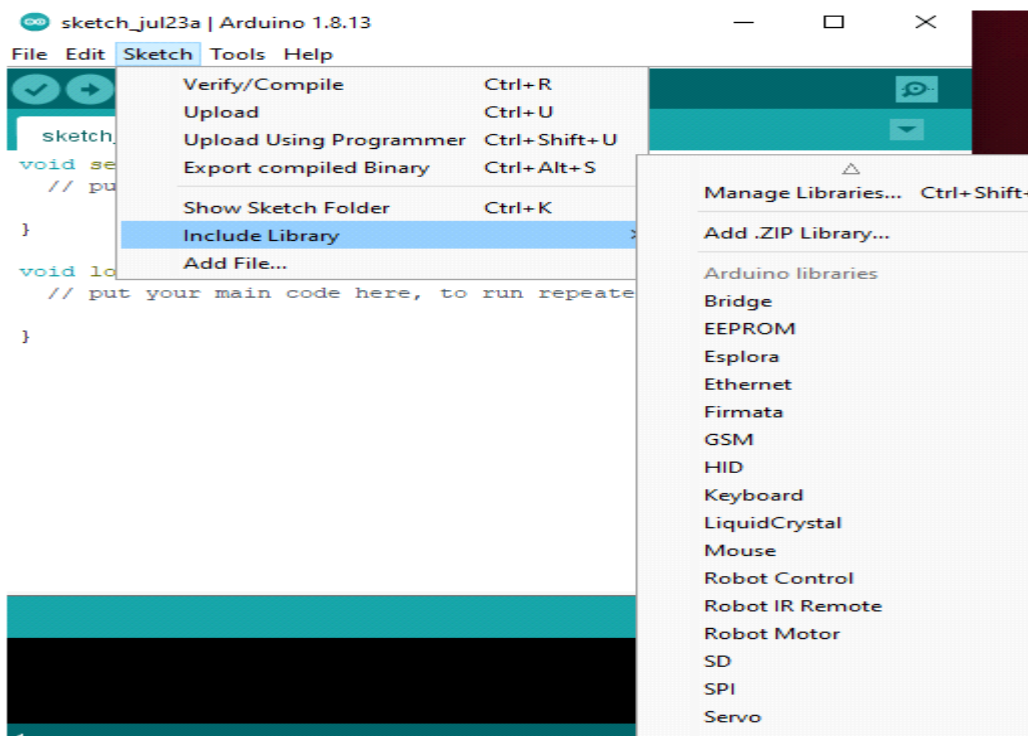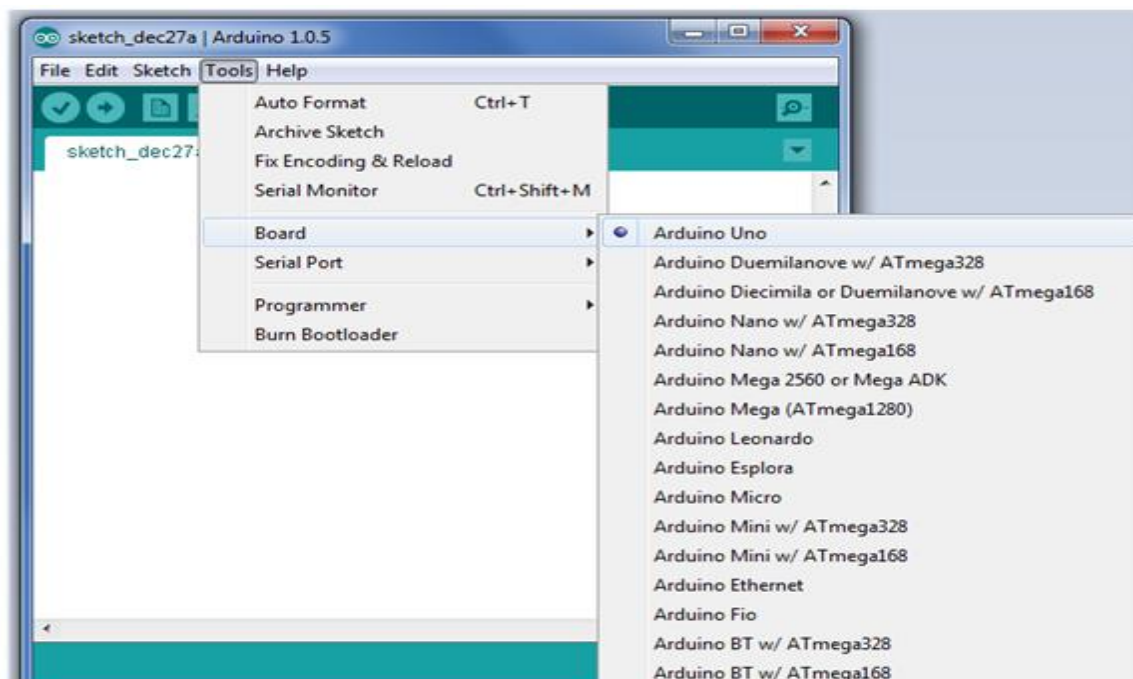
Verify - Click this to check that the Arduino sketch is valid and doesn't contain any programming mistakes (Checks code for errors).
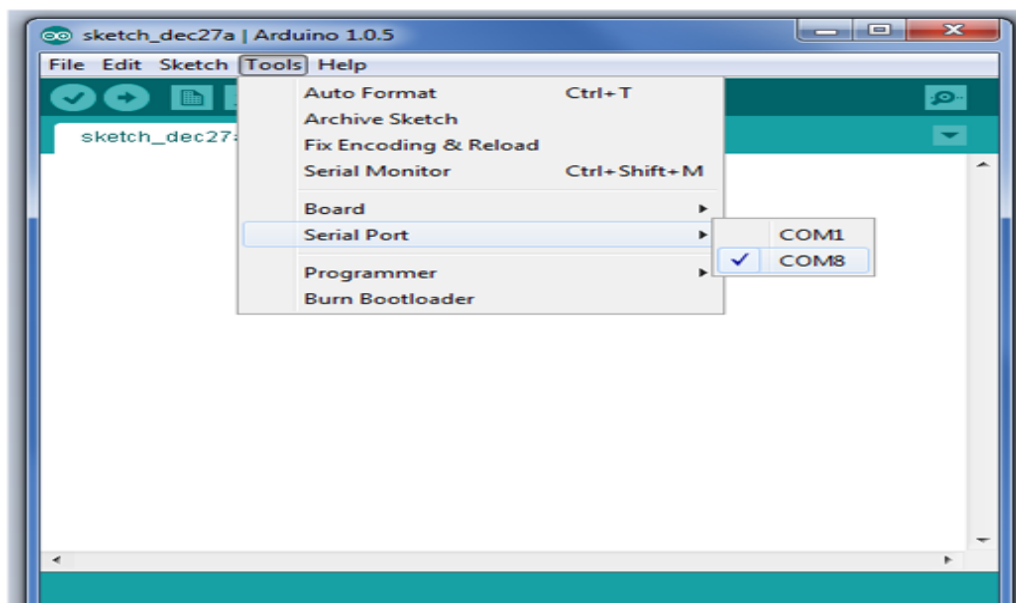

How to Select the Board

In order to upload the sketch, you need to select the relevant board you are using and the ports for that operating system. As you click the Tools on the Menu, it will open like the figure below.

How to Select the Port

- Select a correct port, the actual number depends on your system.

- After correct selection of both Board and Serial Port, click the verify and then upload button appearing in the upper left corner of the six button section or you can go to the Sketch section and press verify/compile and then upload.

- The sketch is written in the text editor and is then saved with the file extension .ino.

Console/Message window Area

6

The message window area is shown at the bottom, Messages from the IDE appear in the black area. It displays the Errors after Compiling, and also you should see the name of your Arduino board type as well as its connected USB port—Arduino UNO (ATmega328).

Board & Serial Port Selections