10/1/25

Week-1

Aim :- Install necessary software for Arduino

1) Go to Google Chrome & there you type "Arduino.cc"

2) Click on the Hardware & explore the different types of Arduino boards.

Table Of Contents:-

i) kits
ii) Nano Family
iii) MKR Family
- Boards
- Shields

iv) Classic Family
- Boards
- Shields

v) Mega Family

3) Click on the software

4) Download the latest version of Arduino IDE 2.3.4.

5) Go to download option you will see

Windows Win 10 & newer 64 bits ✓

Windows MSI installer
Windows ZIP file
Linux Appimage 64 bits (x86-64)
:
macOS Intel, 10.15 : "Catalina" Or newer 64 bits
:

6) Install the version on your desktop

7) Go to the search & search the Arduino IDE 2.3.4

8) Click to open Arduino IDE 2.3.4

9) Go to file click on New.

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10) Every new file starts with month, date followed by a alphabel.

For Ex:- sketch_jan10a → Alphabet
→ Date
→ Month

11) Every file has two functions (by default)

```
void setup()
{
  //put your setup code here, to run once:

}
void loop()
{
  //put your main code here, to run repeatedly.

}
```

12) Go to sketch, to run or compile a sketch.

File	Edit	Sketch	Tools	Help
Verify / Compile				ctrl+R
Upload				Ctrl+U
⋮				

13) Any external libraries to be installed go to sketch and click on "Include Library" and click "Manage Libraries".

14) Go to tools and click on board then click on "Arduino AVR Boards" from that select "Arduino UNO".

15) In tools click on "port:" from that you select COM1 or COM3 (Arduino UNO).

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Install Software For Raspberry Pi

1) Go to Google Chrome and there you type "RaspberryPi.org".
2) After the page gets open click on software
3) When clicking on software a new page gets open there you can see "Install Raspberry PiOS using Raspberry Pi Imager" below that.

Download For Windows
Download For macOS
Download For Ubuntu For X86

4) When you click on download for windows you can see in downloads "imager_1.8.5exe" file.
5) When you open the file "imager_1.8.5exe" it displays a mssage "Welcome to RaspberryPi imager setup".

Raspberry Pi imager 1.8.5

Welcome to .....

Click on Install to Start the Installation.

Install ✓ Cancel

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6) When you click on Install "The Rasberry Pi Imager" has been installed on your computer.

Click Finish To Close Setup

☑ Run Raspberry Pi Imager

Back | Finish ✓ | Cancel

7) After the Raspberry Pi Setup is completed a new page opens that is

Raspberry Pi Imager V1.8.5

Raspberry Pi

Rasberry Pi Device: choose device

OS/m: choose OS

Storage: choose storage

Next

8) Choose the Raspberry Pi Device like Raspberry Pi5, Raspberry Pi4 ✓, etc

9) Choose the operating system like

OS

Raspberry Pi OS (64-bit) ✓

Raspberry Pi OS (32-bit) etc

10) Choose storage a minimum of 16GB SD Card is required to complete the setup.

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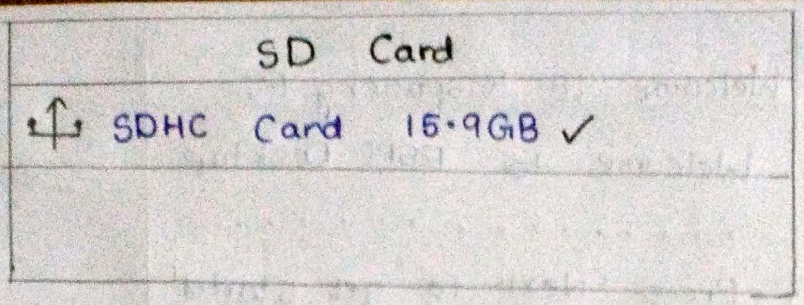
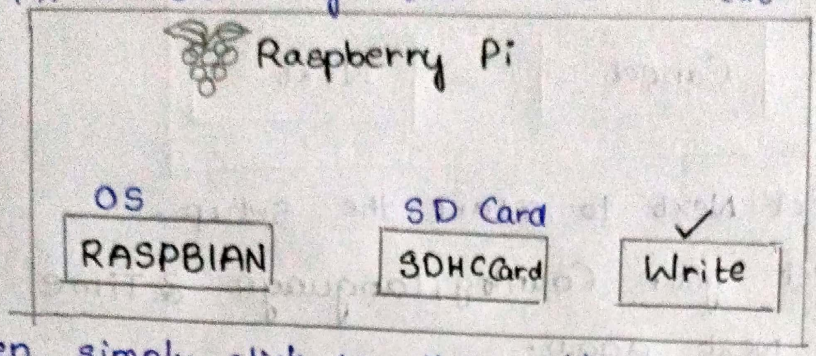
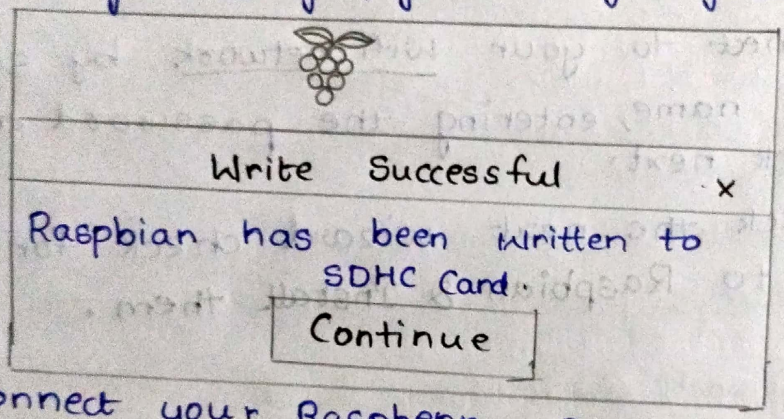


11) After selecting the SD Card Next



Then simply click on the write button. Wait Raspberry Pi Imager to finish writing once you get the following message, you can get your SD card.



Connect your Raspberry Pi

12) Now get everything connected to your Raspberry Pi. It's important to do this in the right order so that all your components are safe.

13) Insert the SD Card you've set up with Raspbian (via NOOBs) into the micro SD Card slot on the underside of your Raspberry Pi. After few seconds the Raspbian Desktop will appear.

14) Finish the setup

- When you start your Raspberry Pi for the first time, "The Welcome to Raspberry Pi application" will popup

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Welcome to Raspberry Pi

Welcome to RSPi Desktop

. . . . . .

Press 'Next to get started'

Cancel | Next

15) Click Next to start the setup.

* Select your Country, Language & Time then click Next again.
* Enter a new password for you Raspberry Pi and click next.
* Connect to your Wifi network by selecting its name, entering the password and click next.
* Click the next wizard check for updates to Raspbian & Install them.

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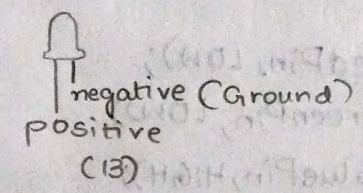
Week-1

1) Blink Code :-

Source Code:-

```
void setup(){
  pinMode(LED_BUILTIN,OUTPUT); //initialize digital pin
                                LED_BUILTIN as an
                                output
}
void loop(){
  digitalWrite(LED-BUILTIN, HIGH); //turn the LED on
  delay(1000); //wait for a second   (HIGH is the
                                      voltage level)
  digitalWrite(LED_BUILTIN,LOW);  //turn the LED off by
  delay(1000); //wait for a second   making the voltage
}                                    LOW
```

Output:-

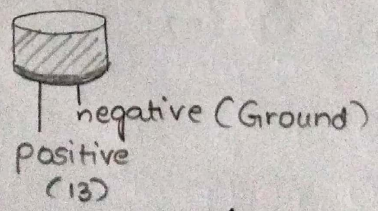


2) Buzzer Code :-

Source Code:-

```
void setup(){
    pinMode(BUZZ,OUTPUT); //initialize digital BUZZ as
                            an output
}
void loop(){
  digitalWrite(BUZZ, HIGH); //turn the buzzer on
  delay(1000); //wait for a second  (High is the sound
                                     volume level)
  digitalWrite(BUZZ,LOW); //turn the buzzer off
  delay(1000); //wait for a  by making the volume
                 second                LOW
}
```

Output:-



3) RGB (Red, Green, Blue) Code:-

Source Code:-

```
//Define the pin numbers for the RGB LED
int redPin=9;
int greenPin=10;
int bluePin=11;
void setup(){
 //set the RGB LED pins as OUTPUT
  pinMode(redPin,OUTPUT);
```

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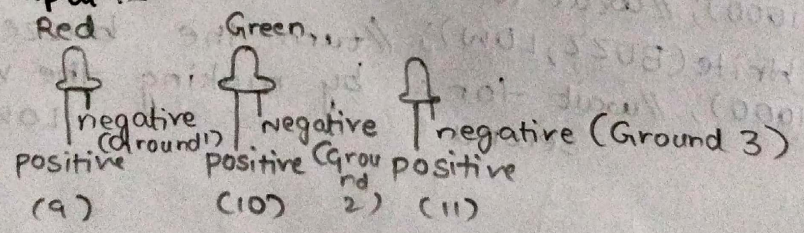
```
    pinMode(greenPin, OUTPUT);
    pinMode (bluePin, OUTPUT);
}
void loop(){
//Red color
digitalWrite (redPin, HIGH);
digitalWrite (greenPin, LOW);
digitalWrite (bluePin, LOW);
delay (1000); //wait for 1 second
//Green color
digitalWrite(redPin, LOW);
digitalWrite (greenPin, HIGH);
digitalWrite (bluePin, LOW);
delay (1000); //Wait for 1 second
//Blue color
digitalWrite (redPin, LOW);
digitalWrite (greenPin, LOW);
digitalWrite (bluePin, HIGH);
delay (1000); //wait for 1second
//All colors off
digitalWrite (redPin, LOW);
digitalWrite (greenPin, LOW);
digitalWrite (bluePin, LOW);
delay (1000); //wait for 1second
}
```

Output :-