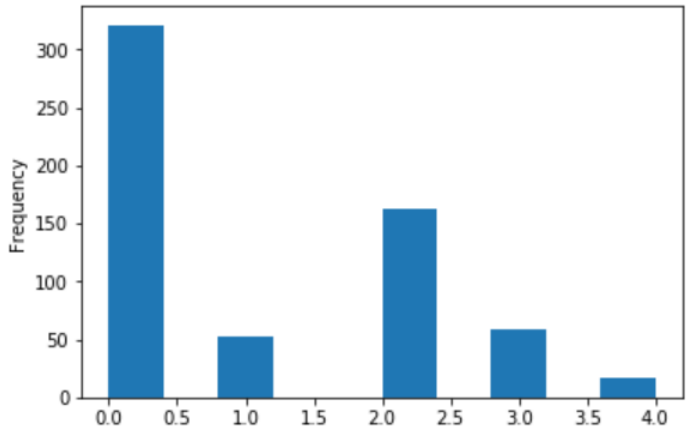
APPENDIX-I

SNAPSHOTS

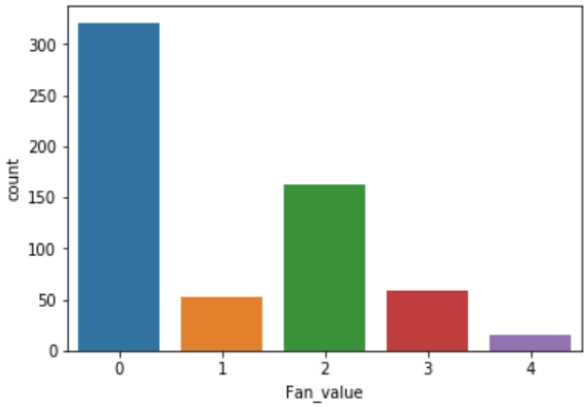
```
train['Fan_value'].plot.hist()
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x231b05de
```



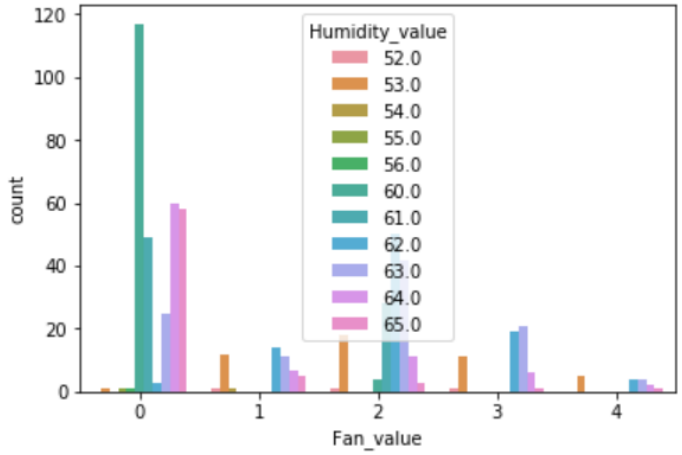

```
sns.countplot(x='Fan_value', data=train)
```

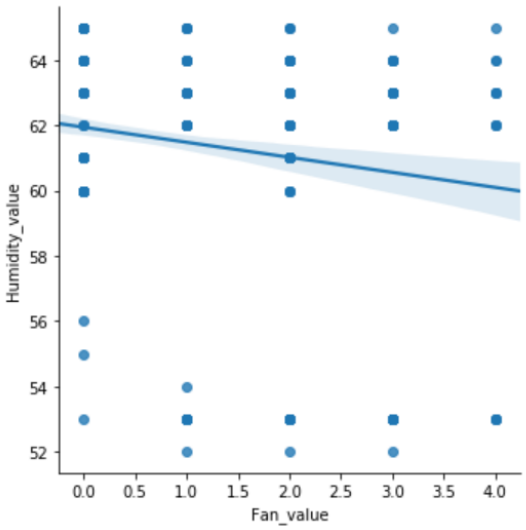
```
<matplotlib.axes._subplots.AxesSubplot at 0x231b26faef0>
```




```
sns.countplot(x='Fan_value', hue='Humidity_value', da
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x231b28b6
```






```
print(predictions)
```

```
[2 0 2 2 0 0 2 2 2 2 0 2 0 2 0 2 2 2 2 0 2 0 0 0 0 0 0 2 2 2 2 0 2 2 2 2 0
 2 0 0 0 0 2 2 0 0 2 0 0 2 2 0 0 0 0 2 2 2 0 0 0 2 2 2 2 2 0 0 2 2 2 2 0
 2 2 0 0 2 2 0 0 0 0 0 2 0 2 0 2 2 2 0 2 0 2 2 0 0 0 2 2 0 2 2 0 0 2 2 0 2
 0 0 0 2 2 0 0 0 0 0 0 0 2 0 0 0 2 0 0 2 2 0 2 2 2 0 0 2 0 2 2 0 0 2 0 2 2
 0 0 0 2 0 2 2 0 2 0 0 2 0 2 0 2 2 0 2 2 2 2 2 2 2 2 0 0 0 0 0 2 0 0 0 2 2
 0 0 2]
```

APPENDIX - II

SOURCE CODE

Humidity and Temperature File

```
#include "config.h"
#include "GoogleAssistant.h"
/************************ Code Starts Here *****************************/
#include <Adafruit_Sensor.h>
#include "DHT.h"
#include "SPI.h"
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);
const int ldrPin = A0;
int lr, r;
// set up the 'temperature' and 'humidity' feeds
AdafruitIO_Feed *temperature = io.feed("Temperature"); //Send Temperature
AdafruitIO_Feed *humidity = io.feed("Humidity"); //Send Humidity
AdafruitIO_Feed *fs = io.feed("Fs"); //for controlling the speed of the fan
AdafruitIO_Feed *lights = io.feed("lights"); //ON or OFF the light
AdafruitIO_Feed *li = io.feed("li"); //Send LUX
void setup() {
  Serial.begin(115200); // start the serial connection
  while (! Serial); // wait for serial monitor to open
  dht.begin(); // initialize dht22
  Serial.print("Connecting to Adafruit IO");
  io.connect(); // connect to io.adafruit.com
  fs->onMessage(handleMessage);
```

```
  lights->onMessage(lifhtscheck);
  while (io.status() < AIO_CONNECTED) // wait for a connection {
  Serial.print(".");
  delay(500);
 }
 Serial.println();
 Serial.println(io.statusText());
 pinMode(ldrPin, INPUT);
 pinMode(D2, OUTPUT);
 pinMode(D3, OUTPUT);
 pinMode(D4, OUTPUT);
 pinMode(D5, OUTPUT);
 pinMode(D6, OUTPUT);
}
void loop() {
 io.run();
 float c = dht.readTemperature();
 Serial.print("celsius: ");
 Serial.print(c);
 Serial.println("C");
 temperature->save(c);
 float h = dht.readHumidity();
 Serial.print("humidity: ");
 Serial.print(h);
 Serial.println("%");
 humidity->save(h); // save humidity to Adafruit IO
 Serial.print("Light Intensity:");
```

```
int in = analogRead(ldrPin) - 7;
Serial.print(in);
Serial.println(" Lux");
li->save(in);
if (r == 0)
{ digitalWrite(D2, HIGH);
  digitalWrite(D3, HIGH);
  digitalWrite(D4, HIGH);
  digitalWrite(D5, HIGH);
  Serial.println(r);
}
else if (r == 1)
{ digitalWrite(D2, LOW);
  digitalWrite(D3, HIGH);
  digitalWrite(D4, HIGH);
  digitalWrite(D5, HIGH);
  Serial.println(r);
}
else if (r == 2)
{ digitalWrite(D3, LOW);
  digitalWrite(D2, HIGH);
  digitalWrite(D4, HIGH);
  digitalWrite(D5, HIGH);
  Serial.println(r);
}
else if (r == 3)
{ digitalWrite(D4, LOW);
```

```
   digitalWrite(D2, HIGH);
   digitalWrite(D3, HIGH);
   digitalWrite(D5, HIGH);
   Serial.println(r);
  }
  else if (r == 4)
  { digitalWrite(D5, LOW);
   digitalWrite(D2, HIGH);
   digitalWrite(D4, HIGH);
   digitalWrite(D3, HIGH);
   Serial.println(r);
  }
  if (lr == 1)
  { digitalWrite(D6, LOW);
   Serial.println("ON");
  }
  else if (lr == 0)  {
   digitalWrite(D6, HIGH);
   Serial.println("OFF");
  }
  delay(5000); // wait 5 seconds (5000 milliseconds == 5 seconds)
}
void handleMessage( AdafruitIO_Data *data) {
  r = data-> toInt();
}void lifhtscheck( AdafruitIO_Data *data)
{ lr = data-> toInt();
}
```

APPENDIX-III

DATASHEETS

A	B	C	D	E
Humidity_value	date_time	Temperature_value	li_value	Fan_value
65	2019-05-23 17:31:11	29	660	2
65	2019-05-23 17:31:17	29	659	1
65	2019-05-23 17:31:24	29	669	1
65	2019-05-23 17:31:30	29	642	0
65	2019-05-23 17:31:38	29	599	1
65	2019-05-23 17:31:45	29	569	1
65	2019-05-23 17:31:49	29	582	2
65	2019-05-23 17:31:55	29	560	3
65	2019-05-23 17:32:02	29	579	4
65	2019-05-23 17:32:11	29	565	2
65	2019-05-23 17:32:15	29	588	0
65	2019-05-23 17:32:21	29	619	1
65	2019-05-23 17:32:29	29	585	0
65	2019-05-23 17:32:34	29	578	0
65	2019-05-23 17:32:40	29	620	0
64	2019-05-23 17:32:46	29	593	1
64	2019-05-23 17:32:55	29	587	1
64	2019-05-23 17:32:59	29	589	0
64	2019-05-23 17:33:06	29	581	2
64	2019-05-23 17:33:12	29	593	3
64	2019-05-23 17:33:18	29	630	2