LAB MANUAL 3

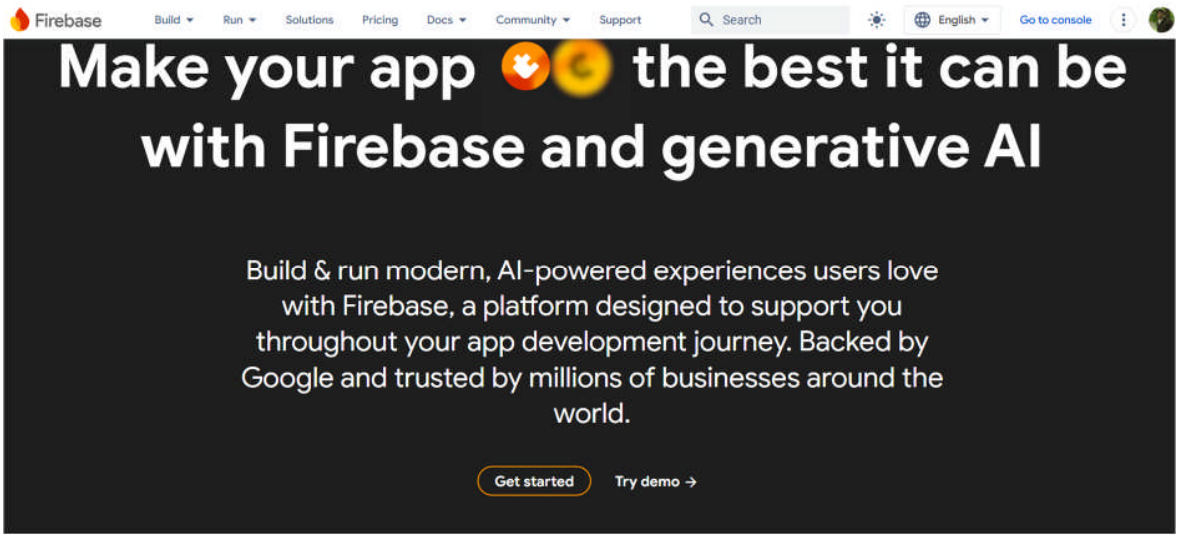
Deployment of Firebase Datalogging from IoT Devices

Deployment of Firebase Datalogging from IoT Devices

The Firebase Realtime Database is a cloud-hosted database. Data is stored as JSON and synchronized in realtime to every connected client. Lets implement a project to log the sensors data to Firebase realtime database

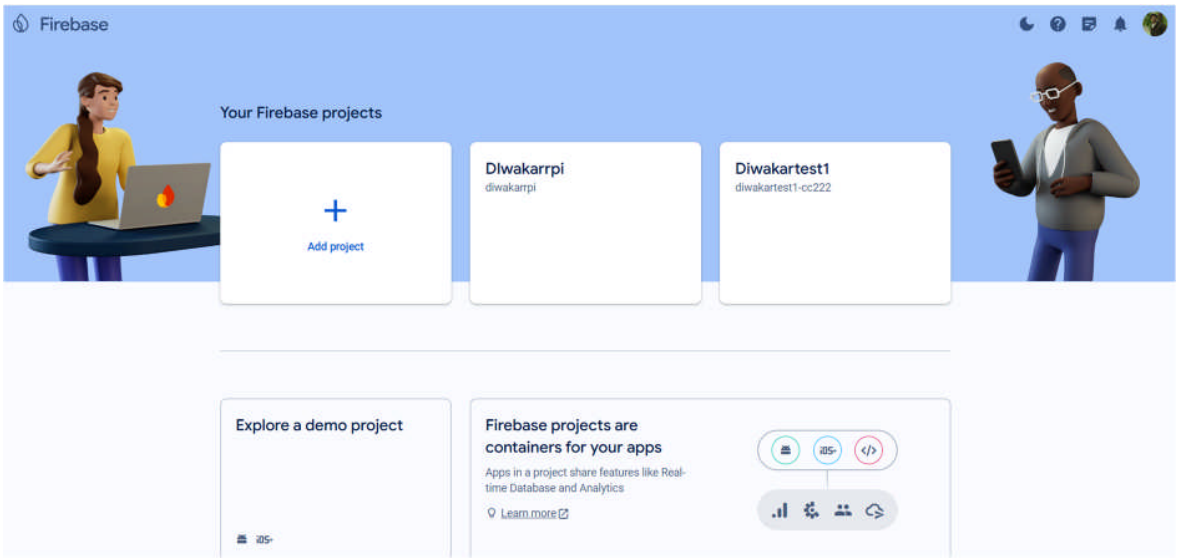
Steps-

1. First things first, you need to create a new project in your console using below link
   Link - https://firebase.google.com/

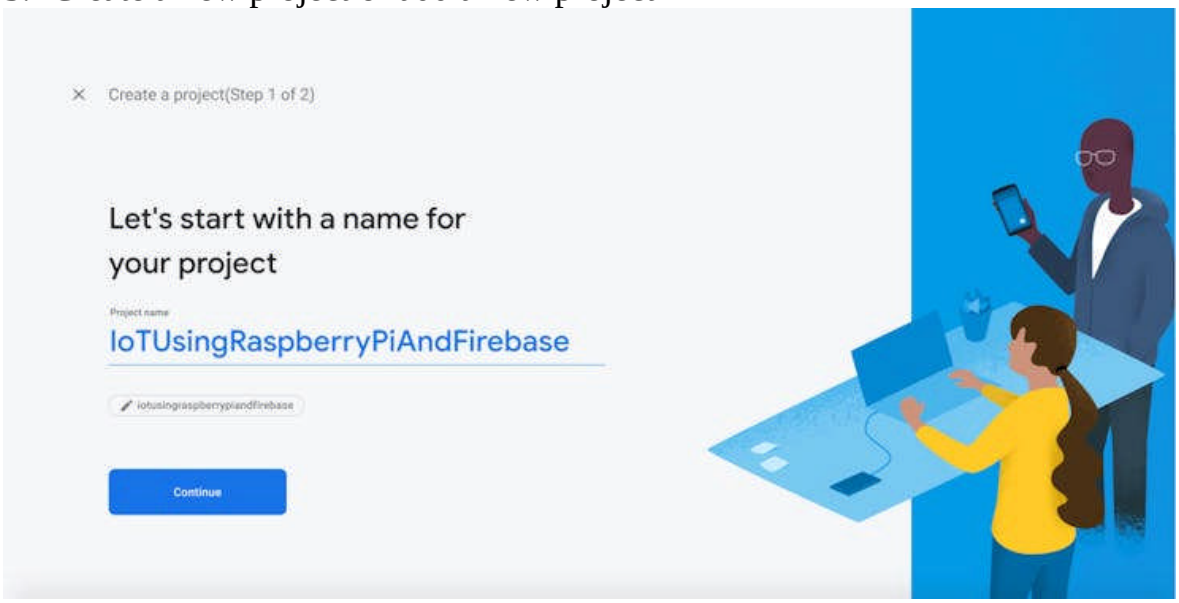


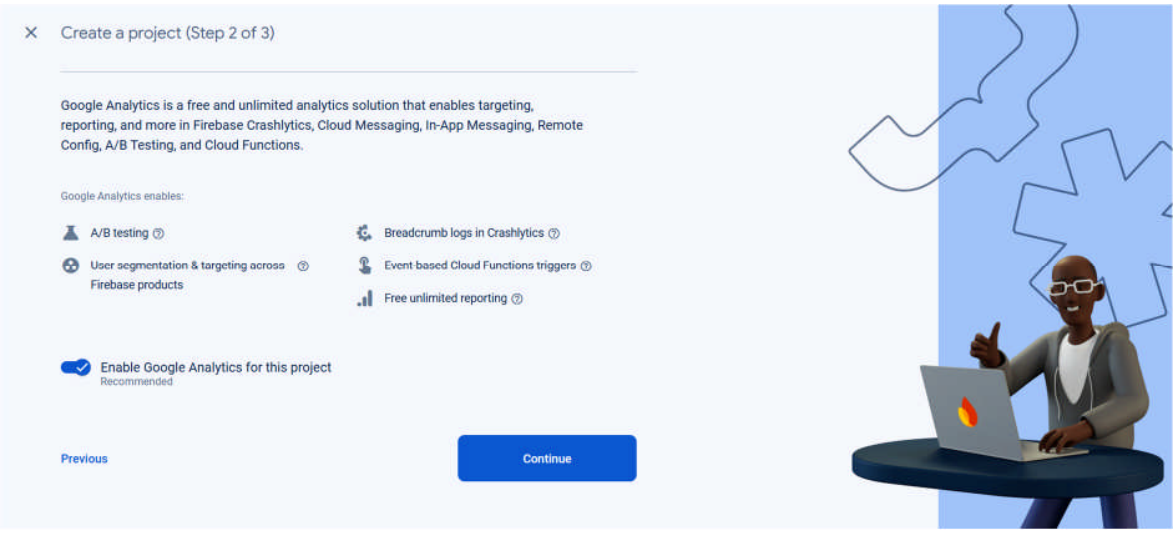
https://firebase.google.com/

2. Click on Get started and make login through Google account

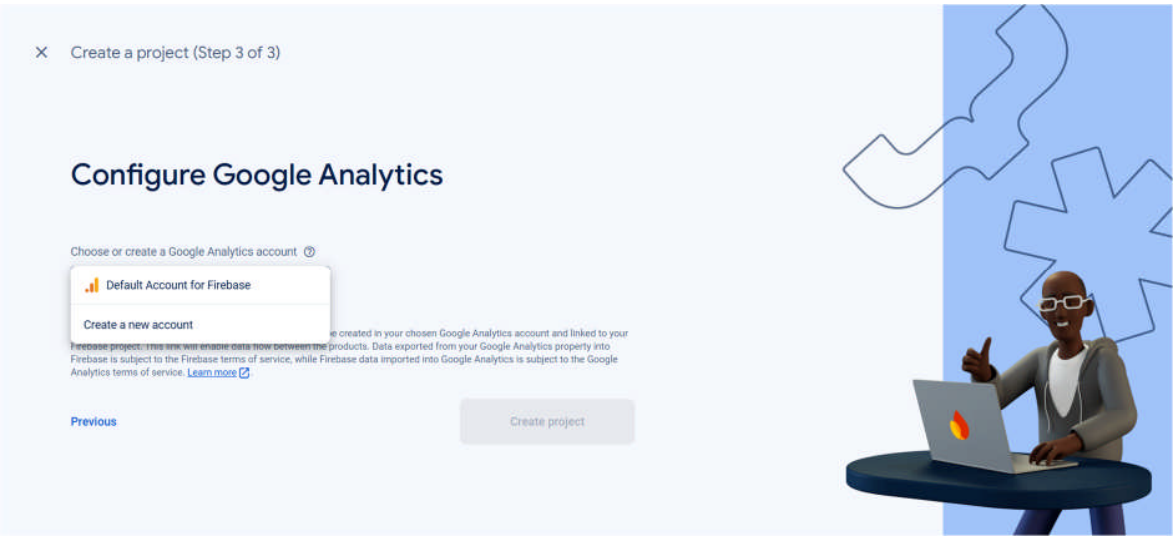


3. Create a new project or add a new project



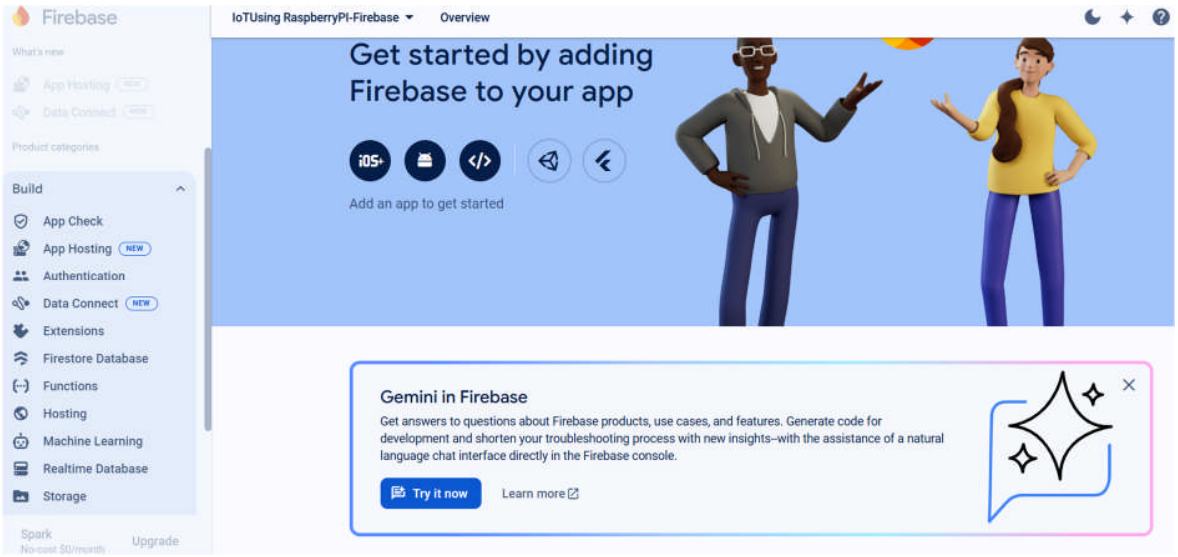


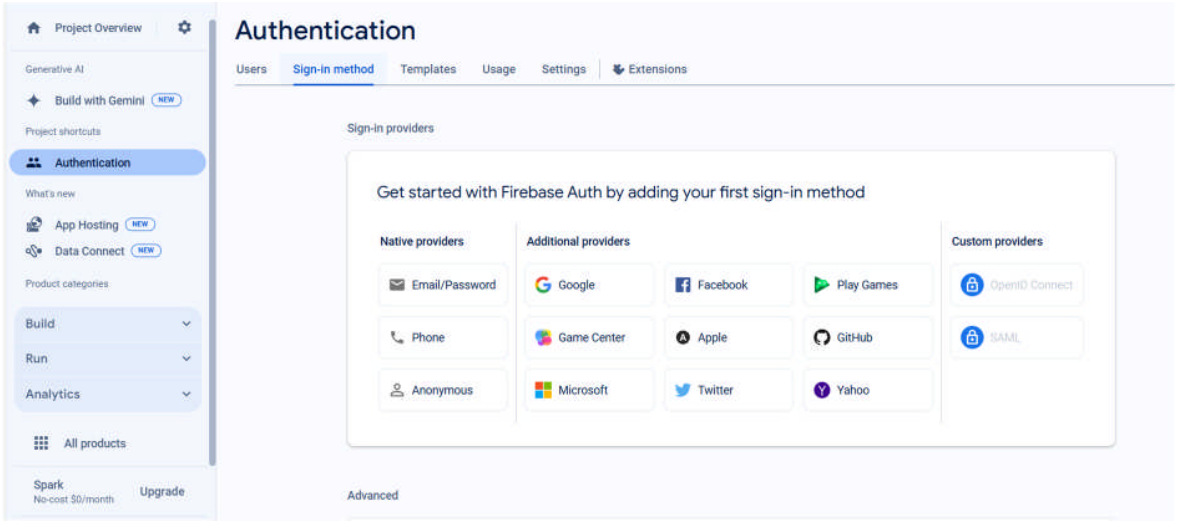
4. Click on continue and next need to select google analytic account to create project



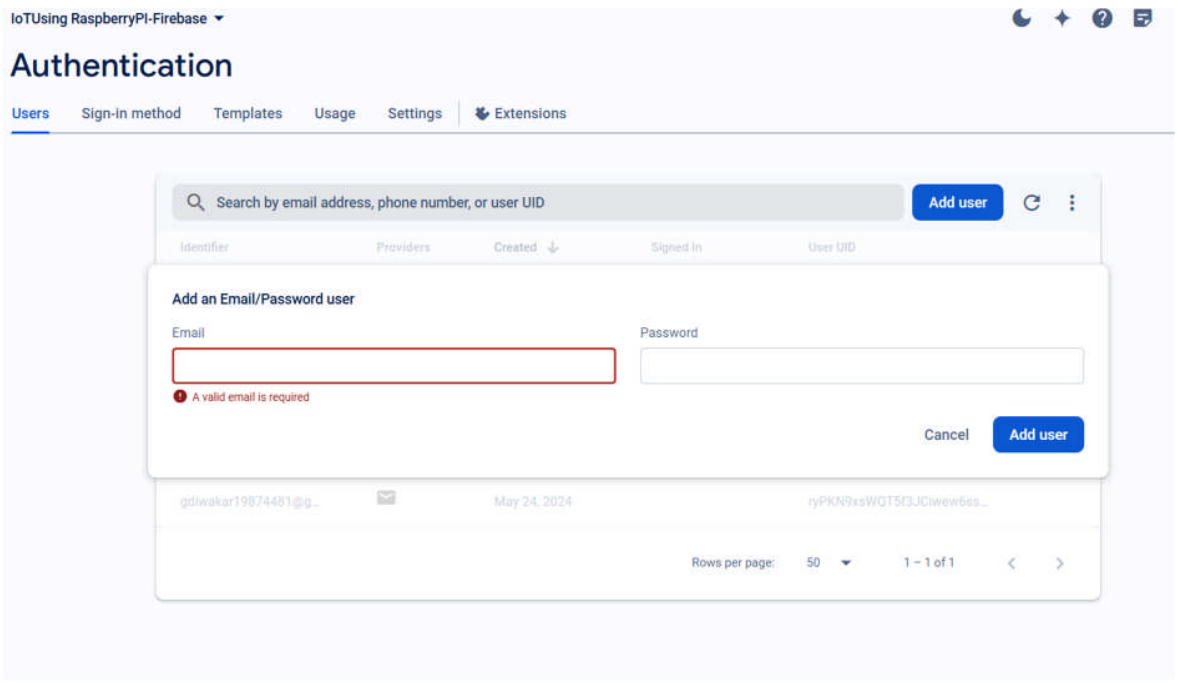
5. Finally will land on project page

6. Under Build head click on Authentication to proceed next. Set authentication mail & password

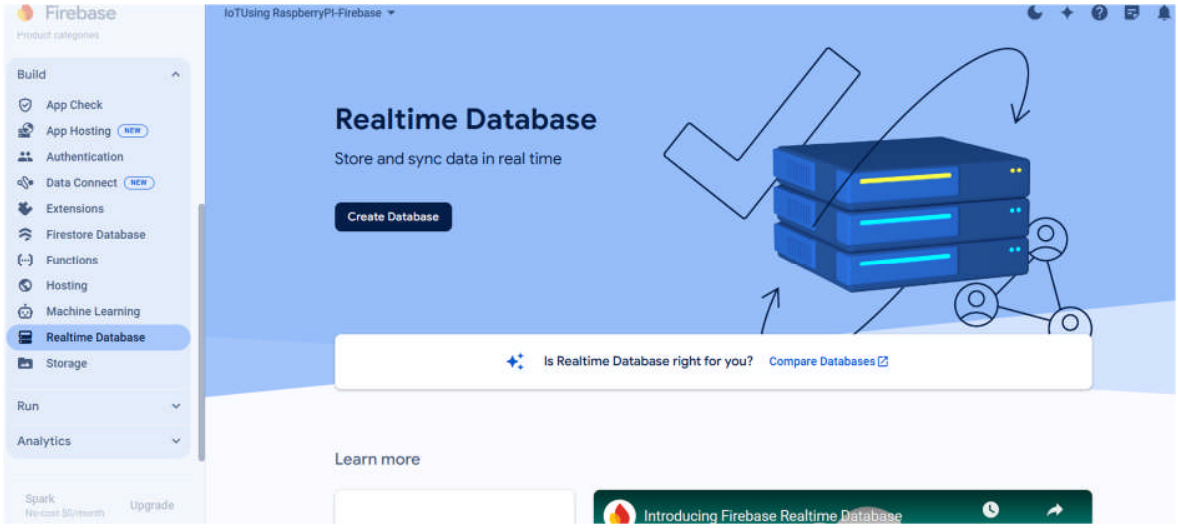




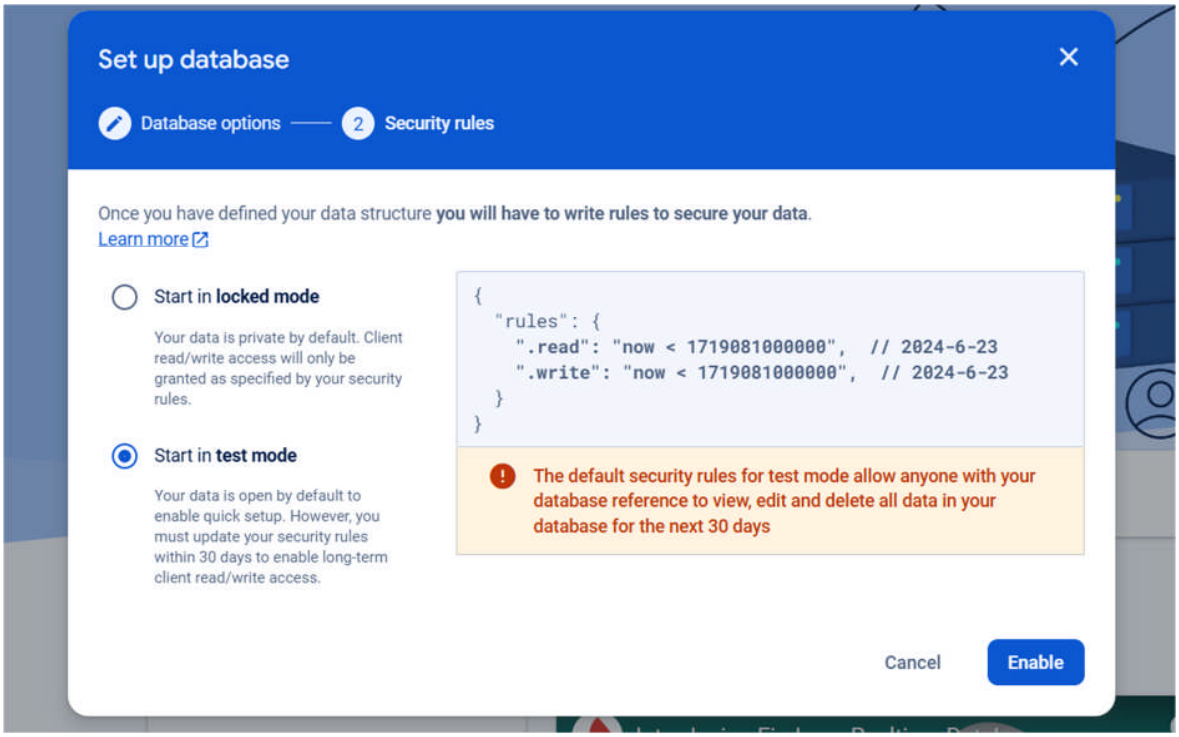
7. Add user as your mail-id and set password also for it



8. Again refer Build section, select Real Time Database and create one

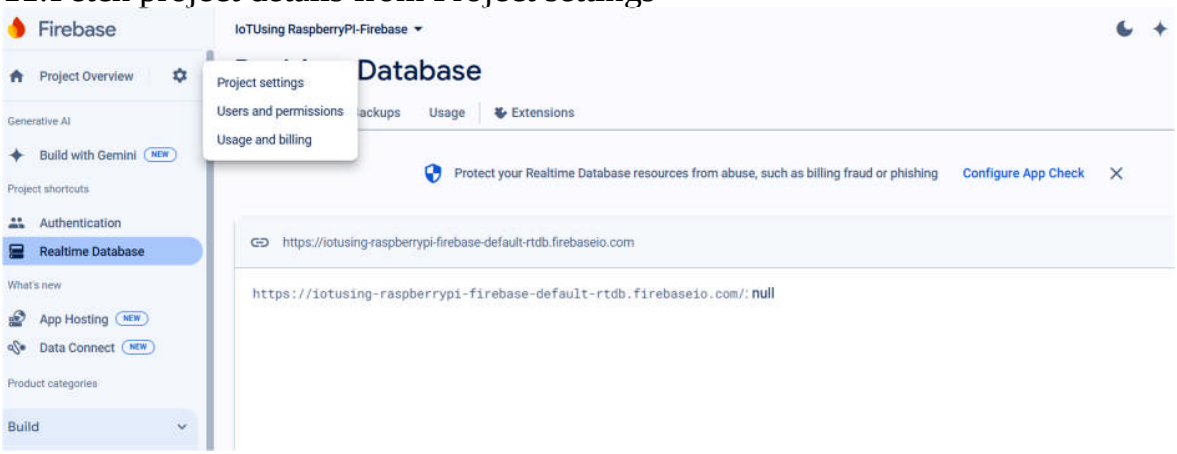


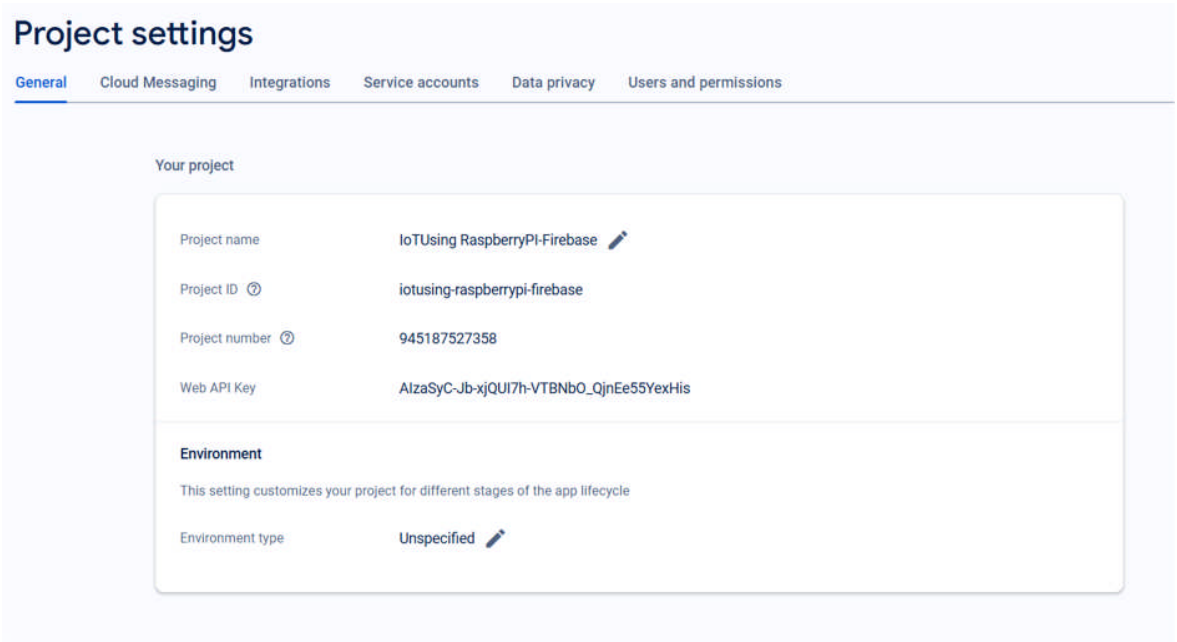
9. Make sure database should be in test mode



10. Get the url of database

11.Fetch project details from Project settings





12. Connect temperature & humidity sensor (A0 & A1) to DFRobot hat on RaspberryPI and run below code. Make sure to replace with your database credentials

Code-

```
# Install library pip3 install Pyrebase
import RPi.GPIO as GPIO
import time
import atexit
from dfadc import *
board_detect()
while board.begin() != board.STA_OK:
    print_board_status()
    print("board begin faild")
    time.sleep(2)
print("board begin success")
board.set_adc_enable()

atexit.register(GPIO.cleanup)
GPIO.setmode(GPIO.BCM)
from time import sleep
from math import isnan
from time import strftime
import math
import pyrebase

config = {
  "apiKey": "AIzaSyBLCJBhKJ6Gi1HN3QkqTqvlklMfdf8vBL4",
  "authDomain": "diwakarrpi.firebaseapp.com",
  "databaseURL": "https://diwakarrpi-default-rtdb.firebaseio.com/",
  "storageBucket": "diwakarrpi.appspot.com"
}

firebase = pyrebase.initialize_app(config)
db = firebase.database()

while True:
    try:
```

```
    # Print the values to the serial port
    temp = board.get_adc_value(board.A0)   # A0 channels read
    humidity = board.get_adc_value(board.A1)
    temperature = (temp/4096)* 100+20
    humidity = (humidity/4096)* 100
    print(temperature)
    print(humidity)
    data = {"Temperature" : temperature,"Humidity" : humidity}
    db.child("Status").push(data)
    db.update(data)
    print("Sent to Firebase")

except RuntimeError as error:
    # Errors happen fairly often, DHT's are hard to read, just keep going
    print(error.args[0])
    time.sleep(2.0)
    continue
except Exception as error:
    dhtDevice.exit()
    raise error

time.sleep(2.0)
```

13. Observe the transferred data seems visible on firebase database

Using GrovePI & RaspberryPI

Steps

1. Connect DHT sensor to port D7
2. Connect LCD to I2C port
3. Install library **pip3 install Pyrebase** & Run below code

Code

```
# pip3 install Pyrebase
from grovepi import *
from grove_rgb_lcd import *
import time
from math import isnan
from time import strftime
import math
import pyrebase

dht_sensor_port = 7

dht_sensor_type = 0 # 0 for DHT11 and 1 for DHT22

setRGB(0,255,0)

config = {
```

```
  "apiKey": "AIzaSyBLCJBhKJ6Gi1HN3QkqTqvlklMfdf8vBL4",
  "authDomain": "diwakarrpi.firebaseapp.com",
  "databaseURL": "https://diwakarrpi-default-rtdb.firebaseio.com/",
  "storageBucket": "diwakarrpi.appspot.com"
}

firebase = pyrebase.initialize_app(config)

db = firebase.database()

while True:
    try:
        # Print the values to the serial port
        [t,h] = dht(dht_sensor_port,dht_sensor_type)
        print(f"Temp:{t} C Humidity:{h}%")
        setText_norefresh(f"Temp:{t} C\nHumidity:{h}%")
        print(t)
        print(h)
        data = {"Temperature" : t,"Humidity" : h}
        db.child("Status").push(data)
        db.update(data)
        print("Sent to Firebase")

    except RuntimeError as error:
        # Errors happen fairly often, DHT's are hard to read, just keep going
        print(error.args[0])
        time.sleep(2.0)
        continue
    except Exception as error:
        dhtDevice.exit()
        raise error

    time.sleep(2.0)
```