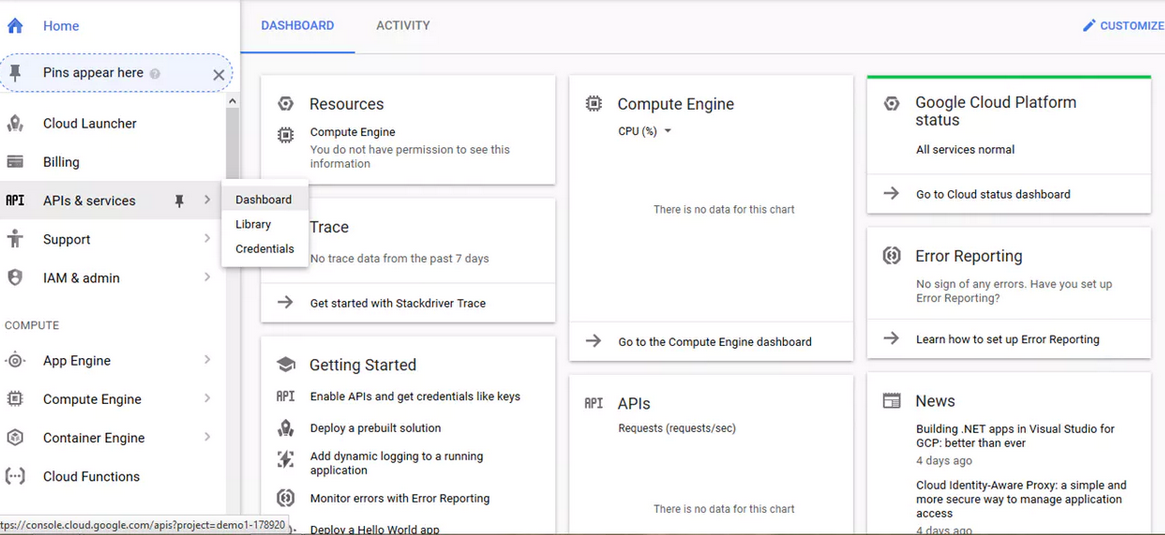
Setting up Database

**Google Cloud**

On the Google Cloud site we have to log in to the account and, before using cloud, you have to give your credit card details. Some of the features are free to use like here we are using MySQL database which is free to use.

**1. How to create a Google Cloud SQL instance**

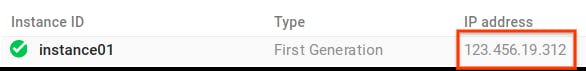
* Go to Console, you will see a page like this.



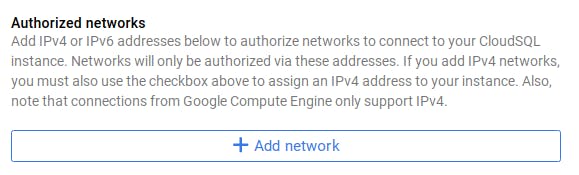
* Go to the Cloud SQL Instances page in the Google Cloud Platform Console.
* Before creating instance you have to select project or create new one. Click Create instance.
* Click Choose Second Generation.
* Enter an ID for the instance. You do not need to prepend the project ID onto the instance ID.
* If you want to configure the instance for high availability, select the Create failover replica check box.
* If needed, set any of the other optional instance settings.
* Click Create.
* After the instance finishes initializing, select the instance to open it.
* Click Access Control > Users.
* Click Change root password and provide a password for the 'root'@'%' MySQL user.

**2. Configure access to your Cloud SQL instance**

* Go to the Cloud SQL Instances page in the Google Cloud Platform Console.
* Record the IP address of the instance.



* Log in to the client machine where your MySQL client is installed.
* Click What's my IP to determine the IP address of the client machine.
* In the Instances page in the Google Cloud Platform Console, click the instance to open its Overview page.
* Click Access control > Authorization.
* Under Authorized networks, click Add network and enter the IP address of the client machine where your MySQL client is installed.



### To connect to your instance:

**(This should be done on a RASPBERRY PI)**

Start the MySQL client:

Example:-

mysql --host=130.211.196.243 --user=root –password

**Using the MySQL client in the Google Cloud Shell**

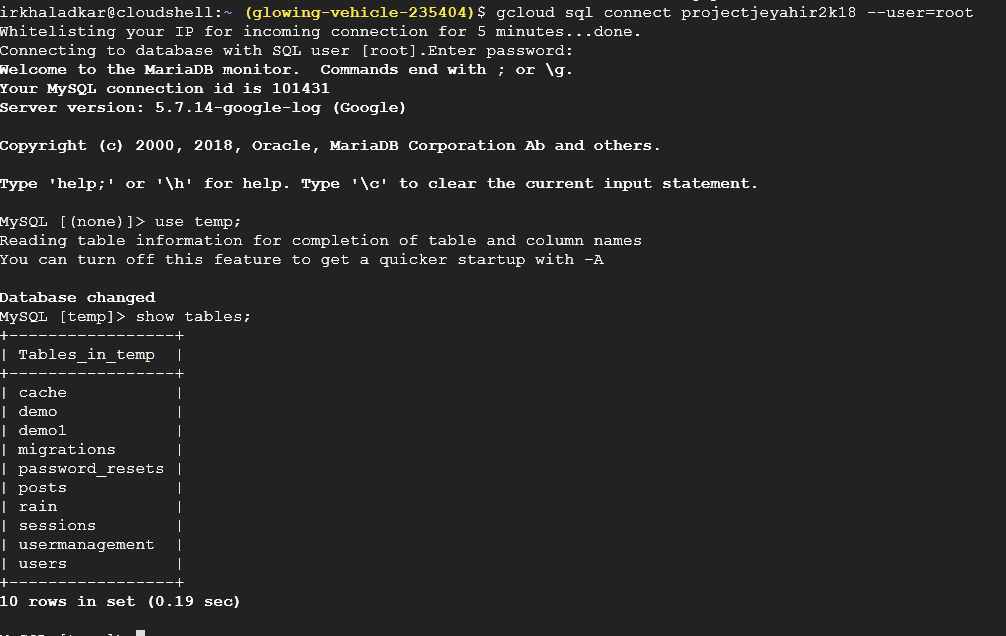
* Go to the Google Cloud Platform Console.
* Click the Cloud Shell icon towards the right in the tool bar. The Cloud Shell takes a few moments to initialize.
* At the Cloud Shell prompt, use the built-in MySQL client to connect to your Cloud SQL instance:

gcloud beta sql connect [INSTANCE\_ID] --user=root

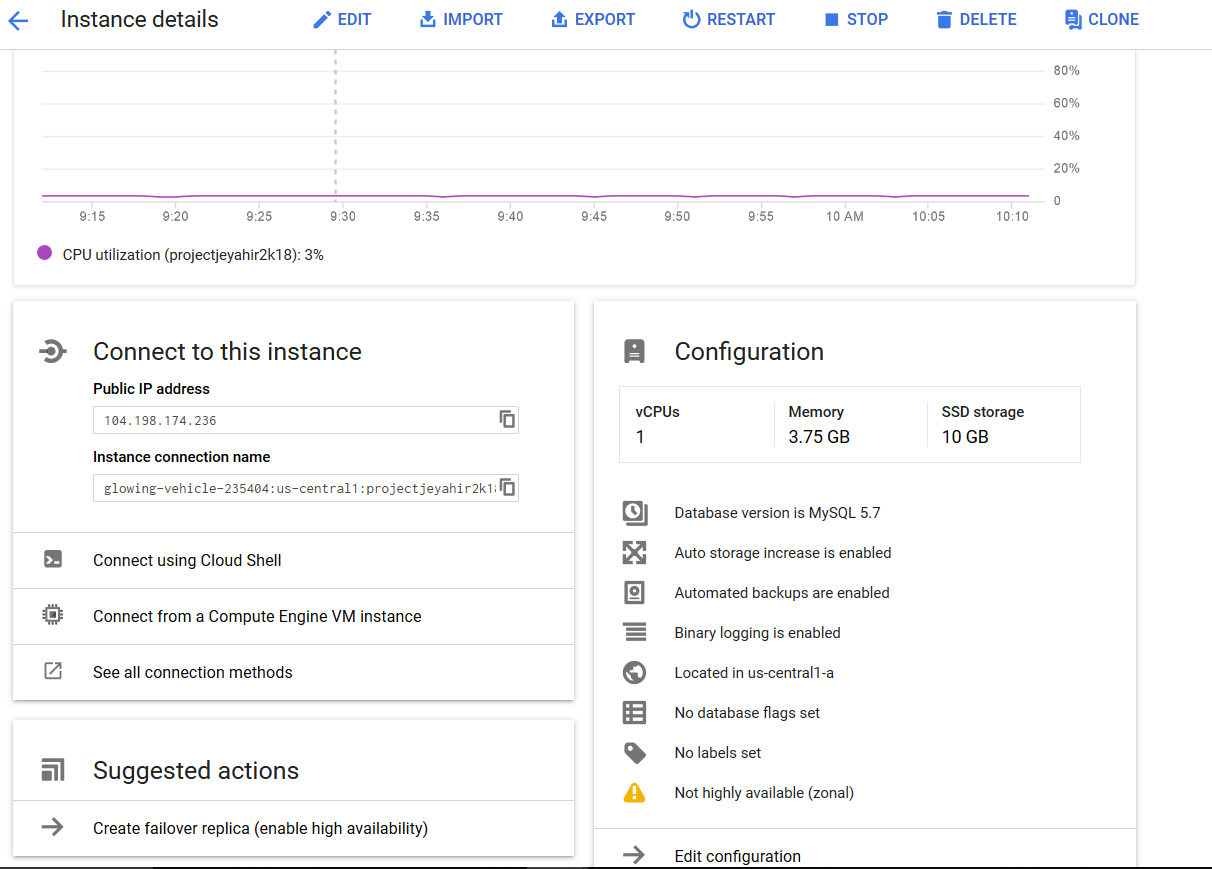
Example:-

gcloud beta sql connect 130.211.196.243 --user=root

* Enter your root password.
* Verify your connection by listing the databases on the instance:



**Instance**



**For RPi**

***1. Raspberry Pi configuration for static IP***

* Go to directory:

cd /etc

* Then open file by command sudo nano dhcpcd.conf and at last add these line and save it.

interface eth0

static ip\_address=182.73.177.100

interface wlan0

static ip\_address=182.73.177.102 //GLOBAL IP

static routers=182.73.177.97 //Default gateway

static domain\_name\_servers=182.73.177.97

* Go to directory:

cd /etc/network

* Then open interfaces file by command, sudo nano interfaces and add these lines:

in iface eth0 static

address 182.73.177.102

netmask 255.255.255.248

gateway 182.73.177.97

* After that check whether IP is changed to static or not,if not then use this command. Flush the Raspberry Pi IP by using command:

sudo ip addr flush dev eth0

sudo ifup eth0

***2. MySQL Installation and Setup***

sudo apt-get update

sudo apt-get upgrade

**To install MySQL**

sudo apt-get install mysql-server mysql-client

Once the installation begins, you will be asked to provide a master password for your MySQL installation. Ensure you choose a good secure password, and it’s a good idea to give MySQL a different password to the one you use to access your Raspberry Pi.

**Log in to MYSQL**

mysql -u root -p

password: -------------------------

* Create database

mysql > create database db\_name;

E.g. create database tempsens;

* Create user:

mysql > create user db\_user;

E.g. create user ruchir;

* Grant privileges:

mysql> grant all on db\_name.\* to 'db\_user'@'lacalhost' db\_password';

E.g. grant all on tempsens.\* to 'ruchir'@'localhost'12134';

* Use command to change database and create table.

use tempsens

* Create table:

create table weatherData (

weatherDataID int(11) AUTO\_INCREMENT NOT NULL,

datetime TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

humidity decimal(4,2) NOT NULL,

tempC decimal(4,2) NOT NULL,

constraint weatherData\_PK primary key (weatherDataID)

);

* To see tables:

show tables;

* To see elements in table:

describe [table\_name];

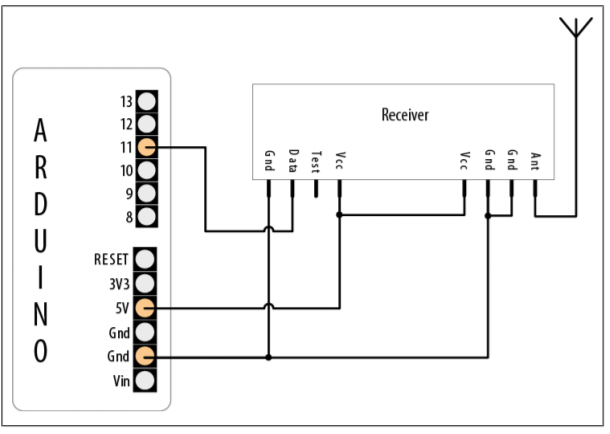
E.g. describe weather Data;

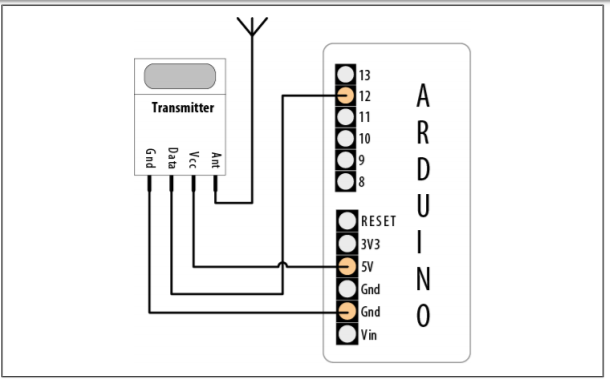
* To see data in table:

SELECT \* FROM [table\_name];

**Instructions**

* Connect the RF-Module to Arduino as shown in the fig. below





* Connect Arduino-Receiver to Raspberrry-Pi through serial port.
* Execute flood.py
* Login to the website
* Monitor the data if the water-level is above threshold click on Open-Gate.