



AMIT ACADEMY

for Computer Education

SUBJECT – PROGRAMMING WITH PYTHON



Google Sheets

Faculty Name – Ankit Rami

Unit-5

Google Sheet API and Python

AMIT ACADEMY FOR COMPUTER EDUCATION

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Introduction of Google sheet API

- ✓ Google Sheets is a free, web-based spreadsheet application that is provided by Google within the Google Drive service. The application is also available as a desktop application on ChromeOS, and as a mobile app on Android, Windows, iOS, and BlackBerry. The Google Drive service also hosts other Google products such as Google Docs, Slides, and Forms.
- ✓ Google Sheets allows users to edit, organize, and analyze different types of information. It allows collaborations, and multiple users can edit and format files in real-time, and any changes made to the spreadsheet can be tracked by a revision history.

Features of Google Sheets

1. Editing

- ✓ One of the key features of Google Sheets is that it allows collaborative editing of spreadsheets in real-time. Rather than emailing one document to multiple people, a single document can be opened and edited by multiple users simultaneously. Users can see every change made by other collaborators, and all changes are automatically saved to Google servers.
- ✓ Google Sheets also includes a sidebar chat feature that allows collaborators to discuss edits in real-time and make recommendations on certain changes. Any changes that the collaborators make can be tracked using the Revision History feature. An editor can review past edits and revert any unwanted changes.

2. Explore

- ✓ The Explore feature in Google Sheets was first introduced in September 2016, and it uses machine learning to bring additional functionalities. This feature provides a lot of information based on the data added to the spreadsheet, and it can auto-update itself depending on the selected data.
- ✓ With the Explore feature, users can ask questions, build charts, visualize data, create pivot tables, and format the spreadsheet with different colors. For example, if you are preparing a monthly budget and you've added all the expenses to the spreadsheet, you can use the Explore feature to get the cost of specific expenses such as food, travel, clothing, etc.
- ✓ On the sidebar, there is a box where you can type the question, and it will return the answer. When you scroll down further in the Explore panel, there is a list of suggested graphs that are representative of the data entered in the spreadsheet, and you can choose between a pivot table, pie chart, or bar chart.

3. Offline editing

- ✓ Google Sheets supports offline editing, and users can edit the spreadsheet offline either on desktop or mobile apps. On the desktop, users need to use the Chrome browser and install the "Google Docs Offline" Chrome extension to enable offline editing for Google Sheets and other Google applications. When using mobile, users need to use the Google Sheets mobile app for Android and iOS, which support offline editing.

4. Supported file formats

- ✓ Google Sheets supports multiple spreadsheet file formats and file types. Users can open, edit, save or export spreadsheets and document files into Google Sheets. Some of the formats that can be viewed and converted to Google Sheets include:
 - .xlsx
 - .xls
 - .xlsm
 - .xlt
 - .xltx
 - .xltxm
 - .ods
 - .csv
 - .tsv

5. Integration with other Google products

- ✓ Google Sheets can be integrated with other Google products such as Google Form, Google Finance, Google Translate, and Google Drawings. For example, if you want to create a poll or questionnaire, you can input the questions in Google Forms, and then import the Google Forms into Google Sheets.

How to Use Google Sheets

- ✓ Google Sheets is a free-to-use application that can be accessed on the Chrome web browser or the Google Sheets app on Android or iOS platform. Users need a free Google account to get started. To create a new Google Excel Sheet, following the following steps:

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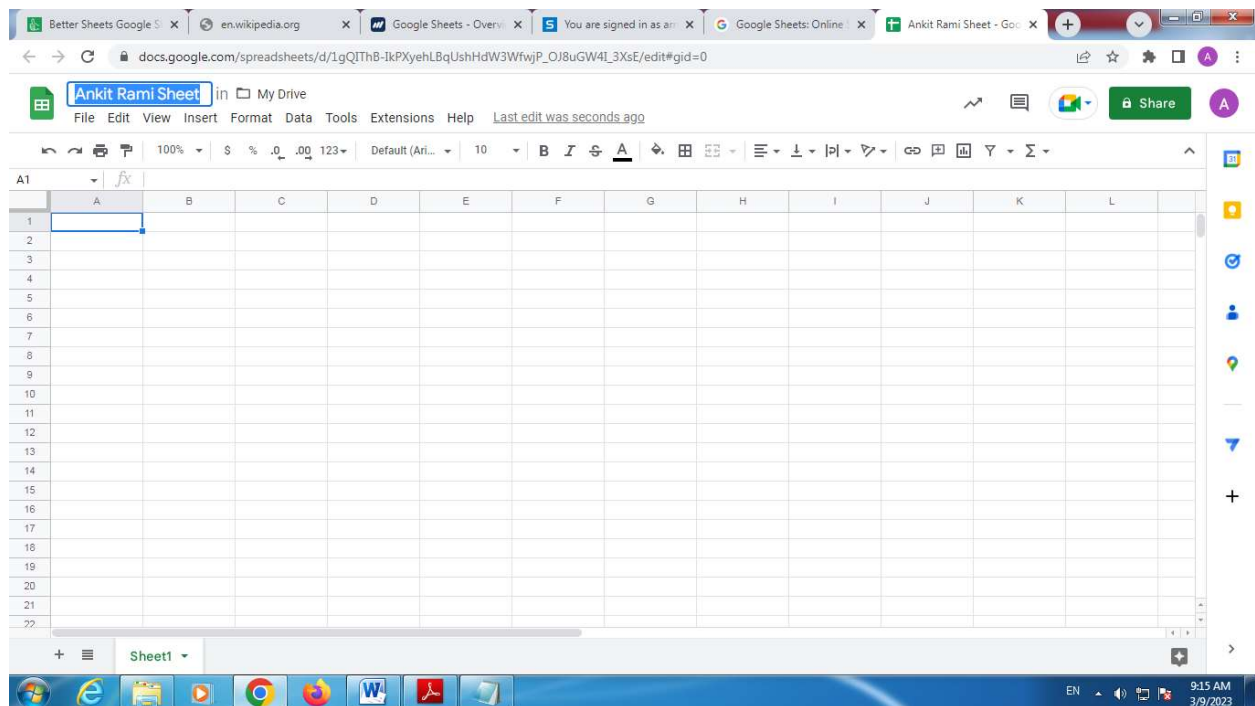
Go to the Google Drive Dashboard, and click the “New” button on the top left corner, and select Google Sheets.

✓ Open the menu bar in the spreadsheet window, go to File then New. It will create a blank spreadsheet, and the interface will be as follows:

✓ Visit Link

- <https://sheets.new/>
- <https://www.google.com/sheets/about/>

✓ Create Sheet and Write File Name and Click **File->Save File(Ctrl+S)**



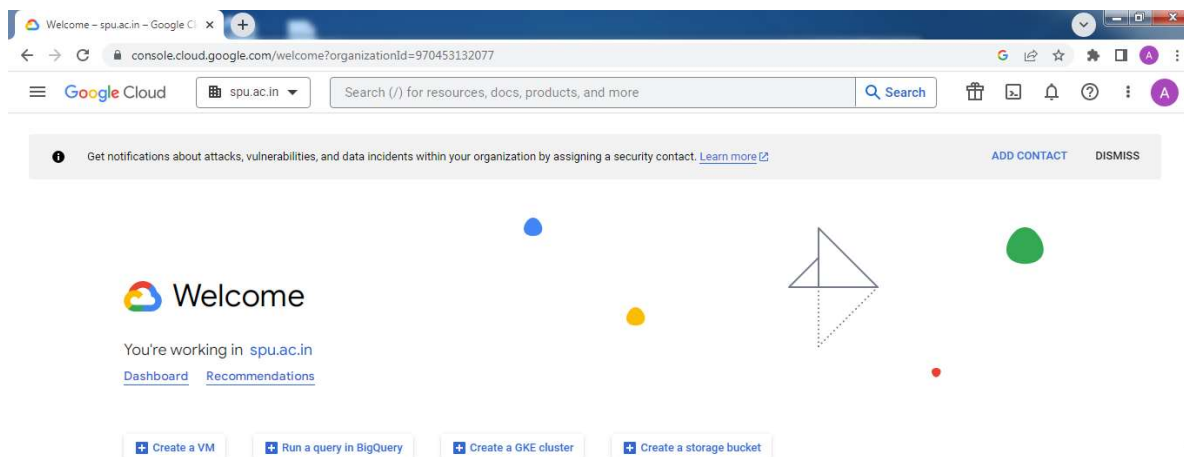
Introduction of Google sheet API

- ✓ The Google Sheets API allows you to manipulate Sheets data from outside Google Sheets. You can manipulate it programmatically using your preferred programming language or through any app or platform that lets you connect to an API. This allows you to use your Google Sheets spreadsheets as databases.
- ✓ The Google Sheets API is a Restful interface that lets you read and modify a spreadsheet's data. The most common uses of this API include the following tasks:
 - Create spreadsheets
 - Read and write spreadsheet cell values
 - Update spreadsheet formatting
 - Manage Connected Sheets

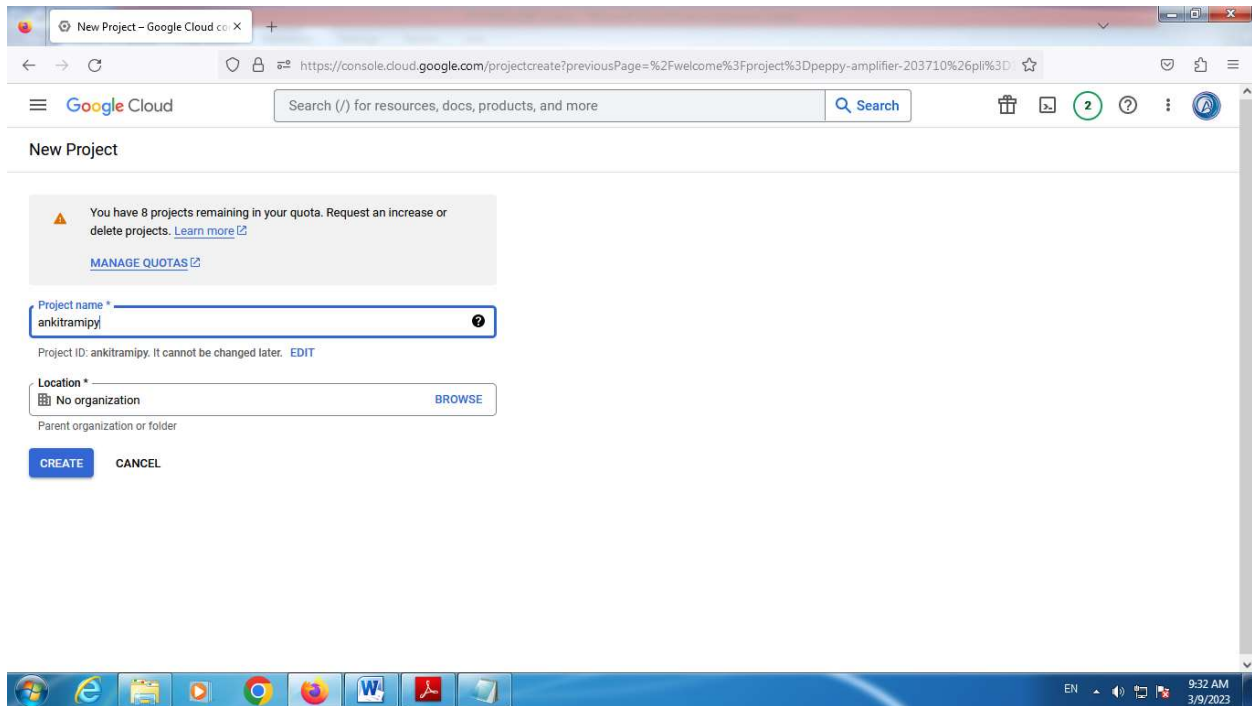
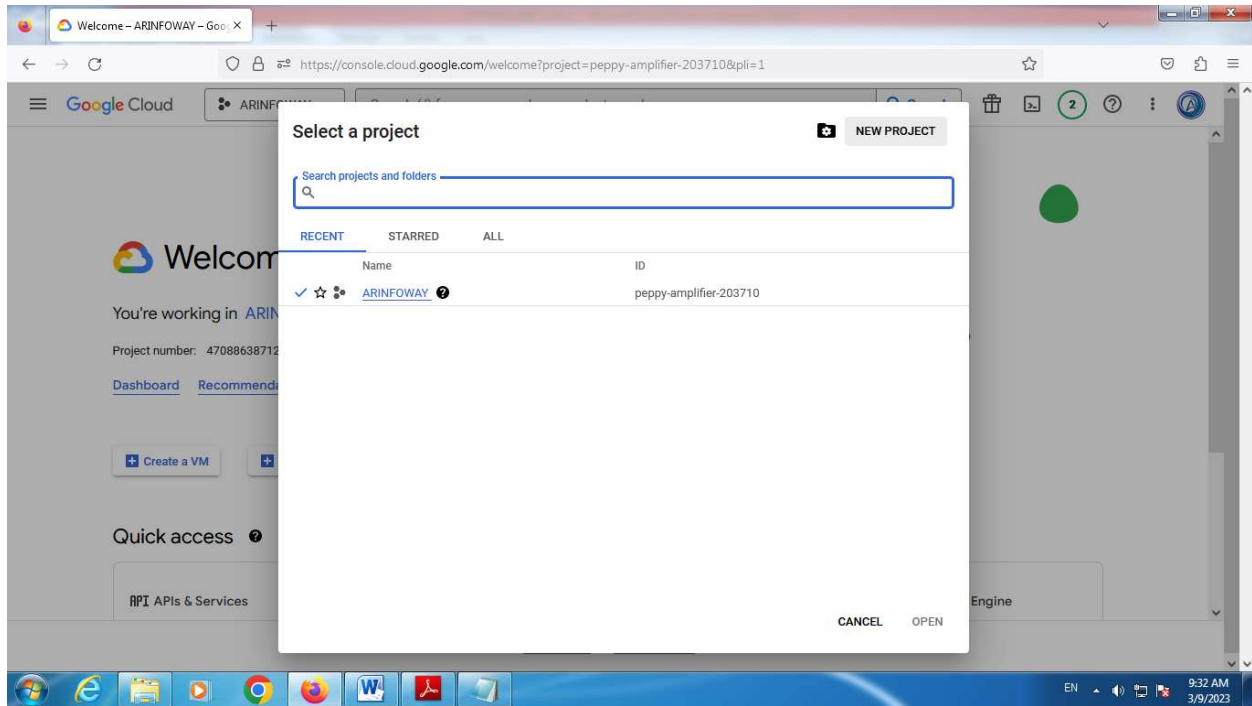
How to Create and Access Google Sheet Using Python (Create, Edit, Delete Data and More...)

- ✓ Step-1 Visit Website

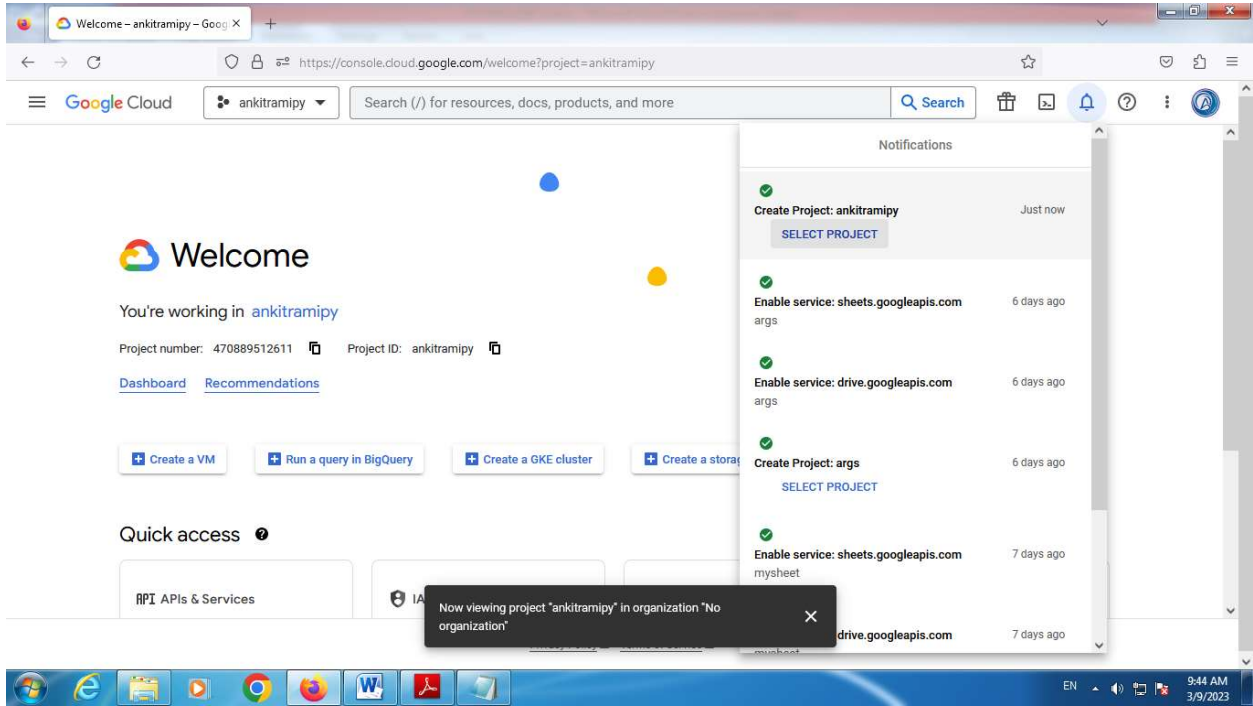
<https://console.cloud.google.com/>



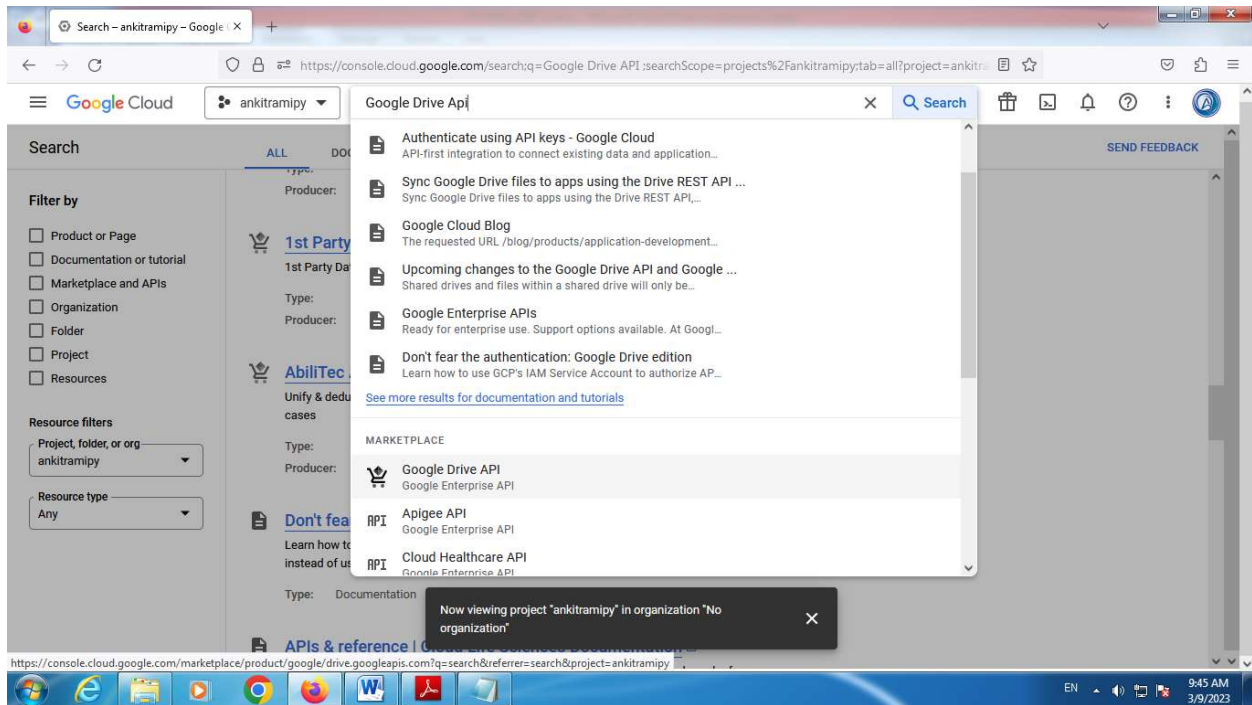
✓ Step-2 Create Google Cloud Console Project



✓ Step-3 Select Created Google Cloud Console Project



✓ Step-4 Search Google Drive API in Google Cloud Console Project

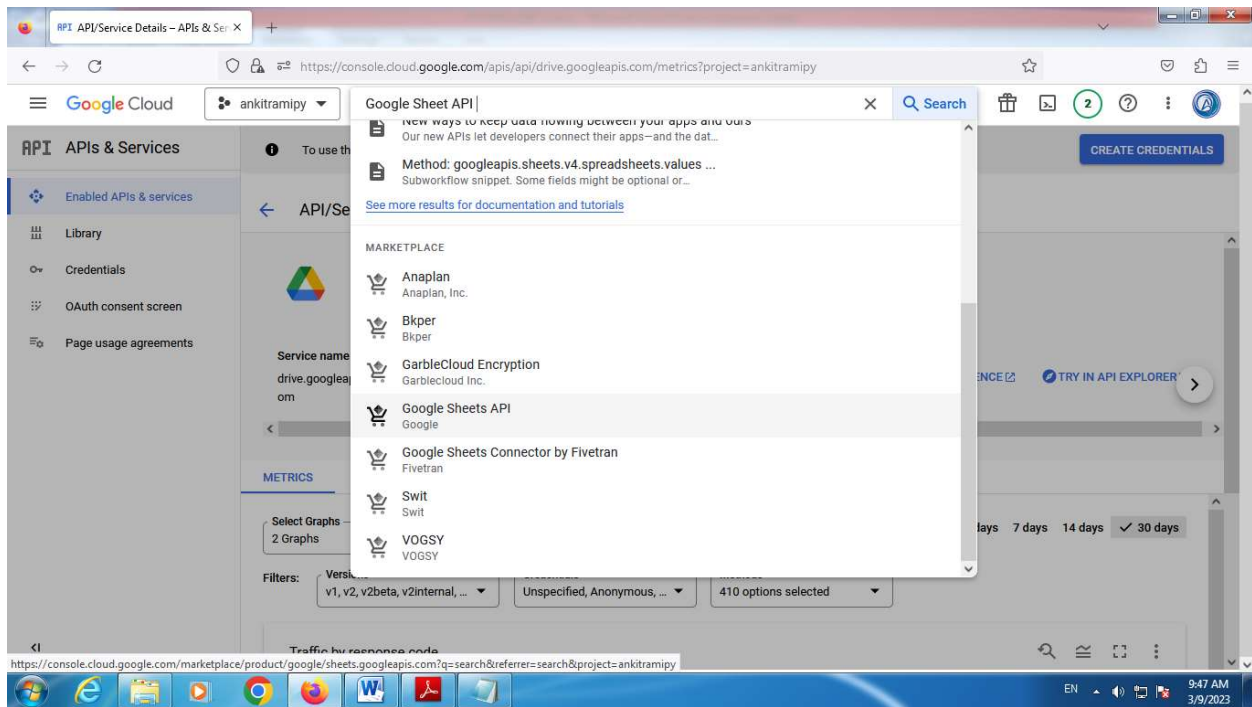


✓ Click to Enable Google Drive API

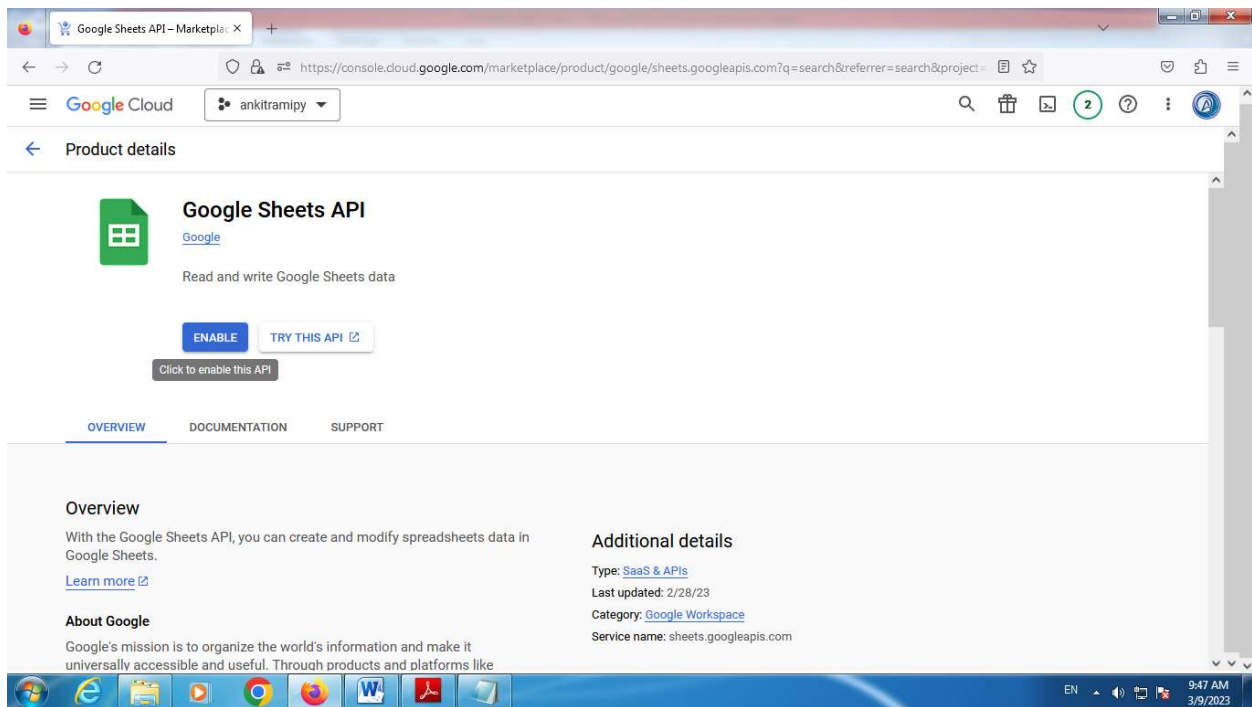
The screenshot shows the Google Cloud Marketplace page for the Google Drive API. The browser address bar shows the URL: <https://console.cloud.google.com/marketplace/product/google/drive.googleapis.com?q=search&referrer=search&project=ankitramip>. The page title is "Product details" and the product name is "Google Drive API" (Google Enterprise API). Below the product name, there is a description: "Create and manage resources in Google Drive." There are two buttons: "ENABLE" and "TRY THIS API". Below these buttons is a tooltip that says "Click to enable this API". The page has tabs for "OVERVIEW", "DOCUMENTATION", and "SUPPORT". The "OVERVIEW" tab is active, showing a description: "With the Google Drive API, you can access resources from Google Drive to create files, manage file sharing, search for files and folders, and more." There is a link "Learn more". To the right, under "Additional details", it shows: "Type: SaaS & APIs", "Last updated: 2/6/23", "Category: Google Enterprise APIs, Storage, Google Workspace", and "Service name: drive.googleapis.com". The Windows taskbar at the bottom shows the time as 9:46 AM on 3/9/2023.

The screenshot shows the "API/Service Details" page for the Google Drive API in the Google Cloud console. The browser address bar shows the URL: <https://console.cloud.google.com/apis/api/drive.googleapis.com/metrics?project=ankitramip>. The page title is "API/Service Details" and there is a "DISABLE API" button. The product name is "Google Drive API" and the description is "The Google Drive API allows clients to access resources from Google Drive." Below this, it says "By Google Enterprise API". There is a table with columns: "Service name" (drive.googleapis.com), "Type" (Public API), and "Status" (Enabled). There are links for "OVERVIEW", "QUICKSTARTS", "API REFERENCE", and "TRY IN API EXPLORER". Below the table, there are tabs for "METRICS", "QUOTAS", "CREDENTIALS", and "DRIVE UI INTEGRATION". The "METRICS" tab is active, showing a "Select Graphs" dropdown set to "2 Graphs" and a time range selector set to "30 days". There are filters for "Versions" (v1, v2, v2beta, v2internal), "Credentials" (Unspecified, Anonymous), and "Methods" (410 options selected). The Windows taskbar at the bottom shows the time as 9:46 AM on 3/9/2023.

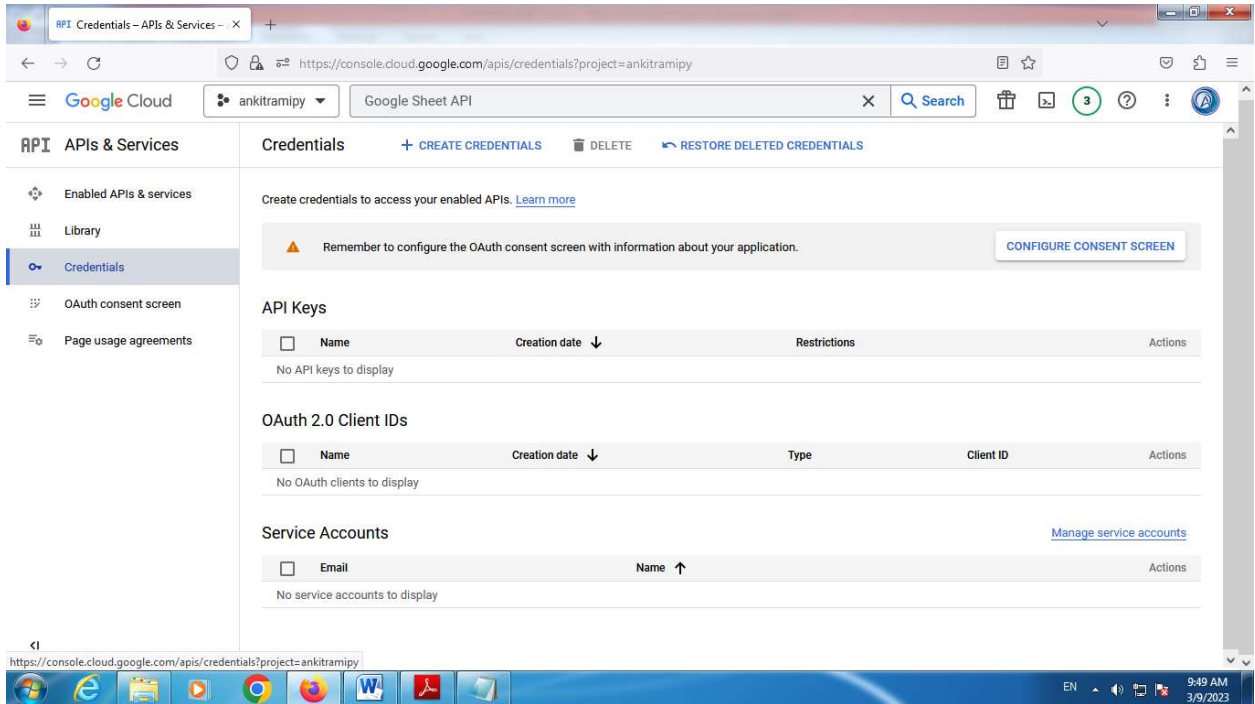
✓ Step-5 Search Google Sheet API in Google Cloud Console Project



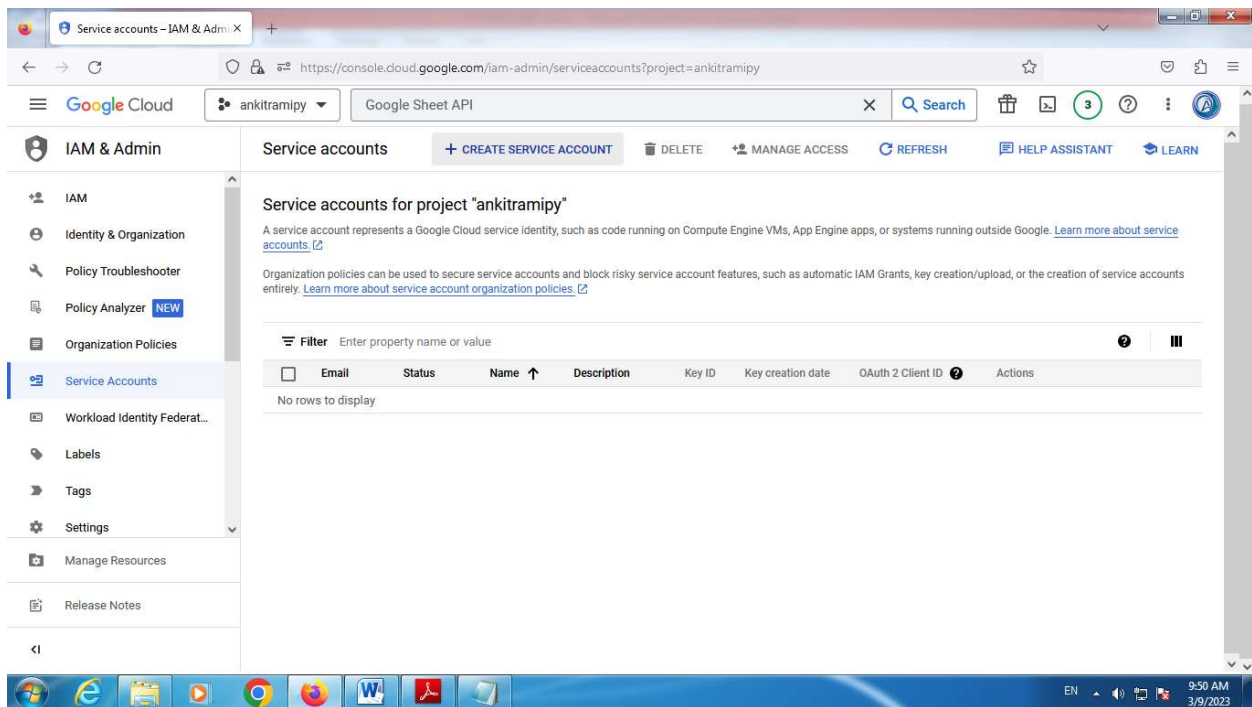
Click to Enable Google Sheet API

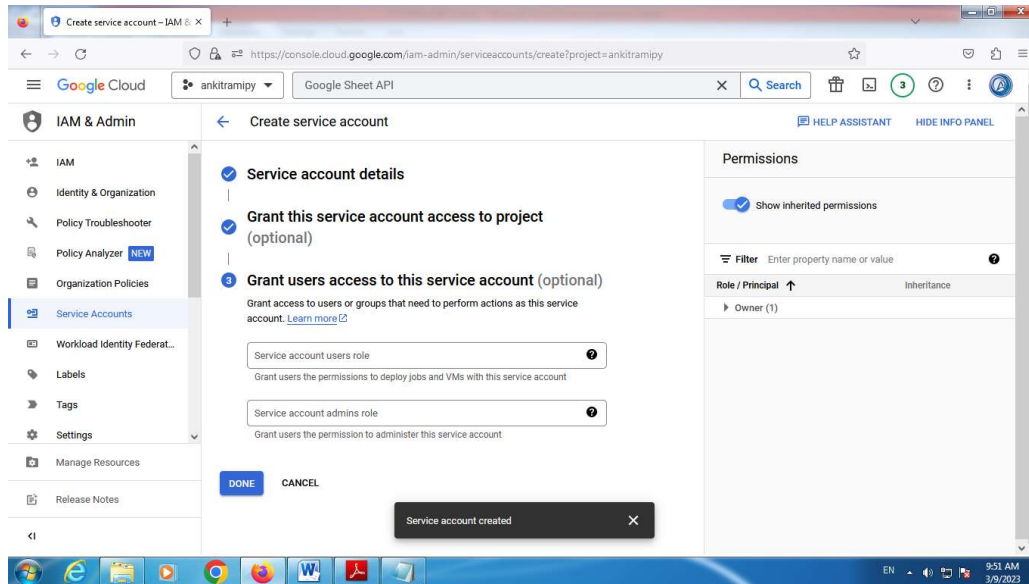
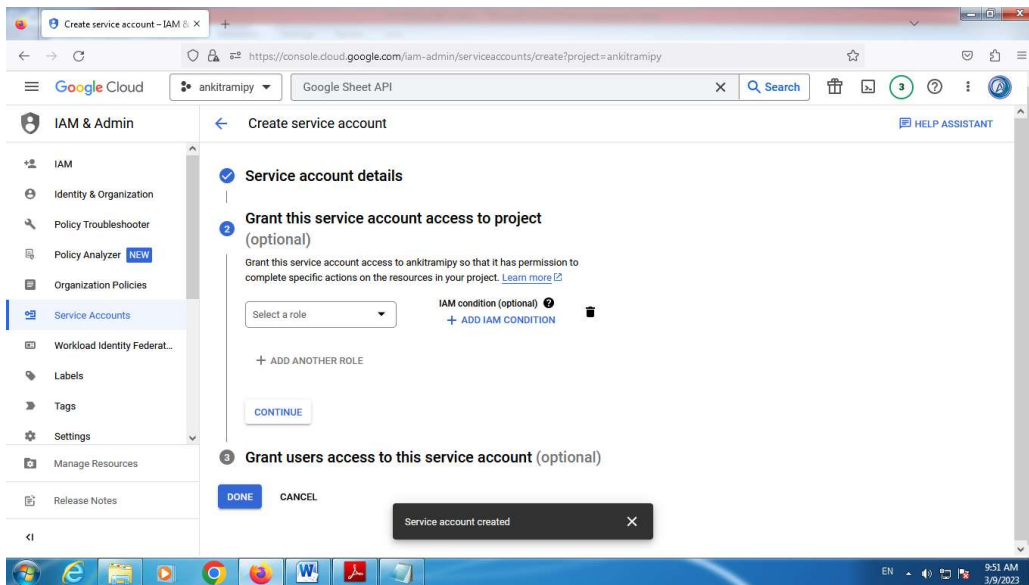
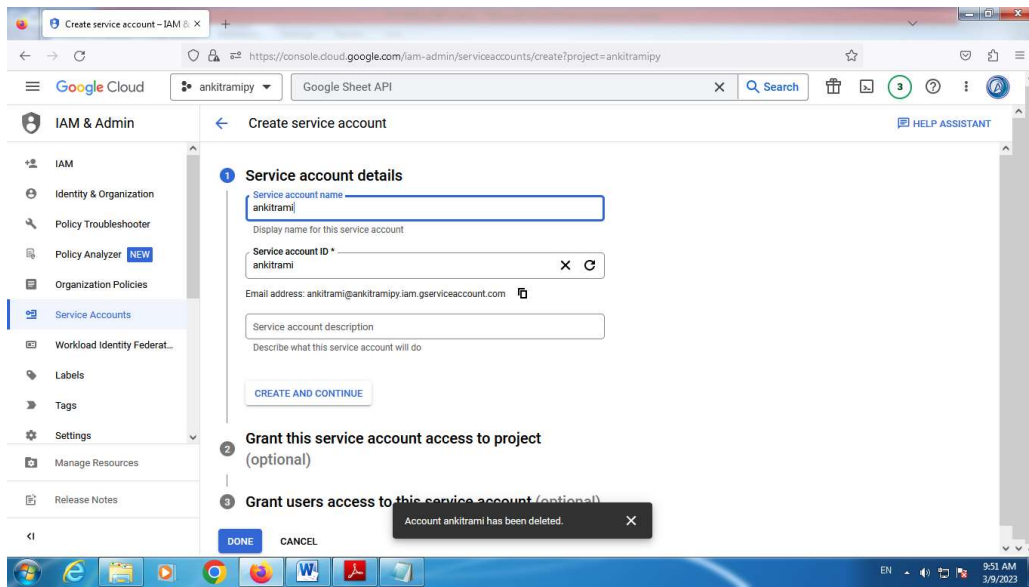


✓ Step-6 CREATE CREDENTIALS in Google Sheet API Google Cloud Console Project



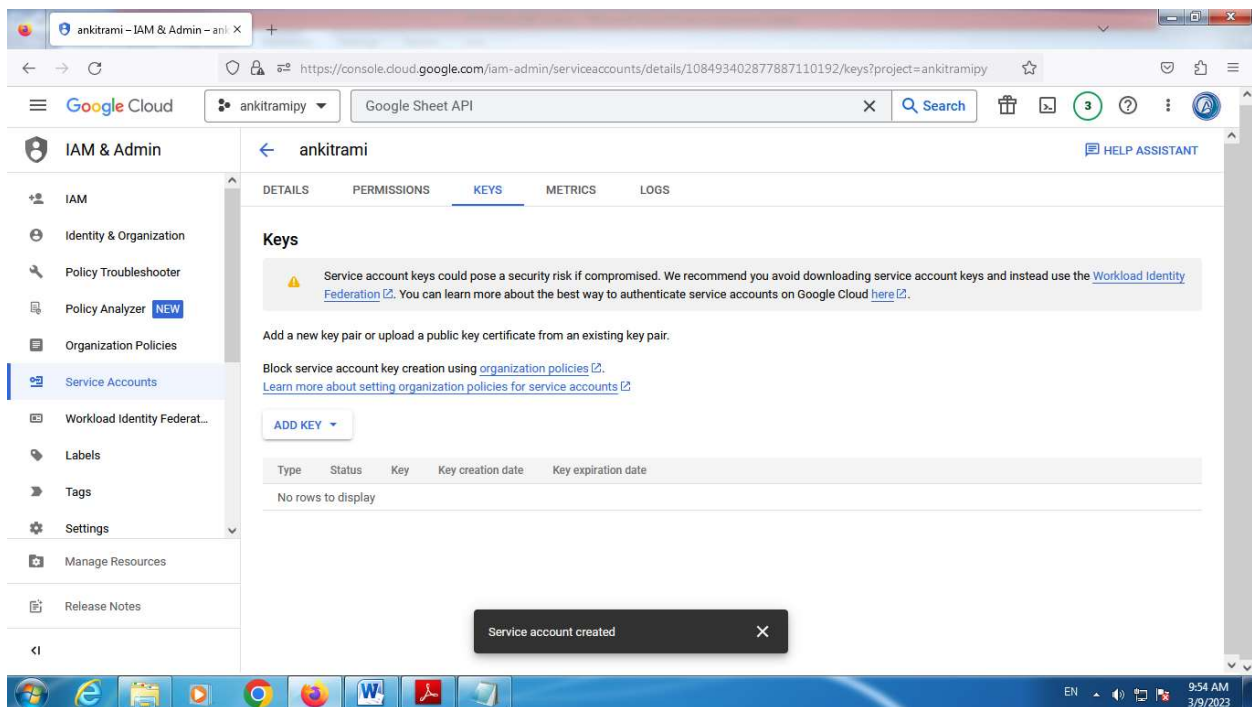
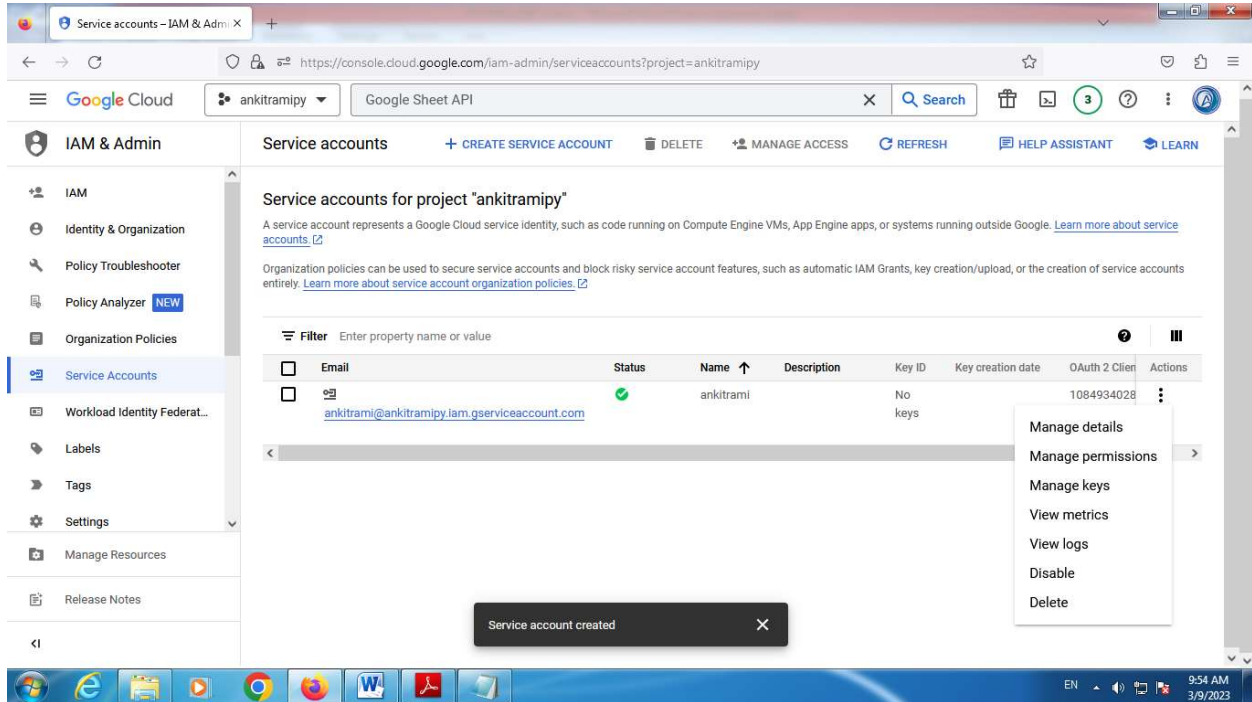
✓ Click to Manage Service Account



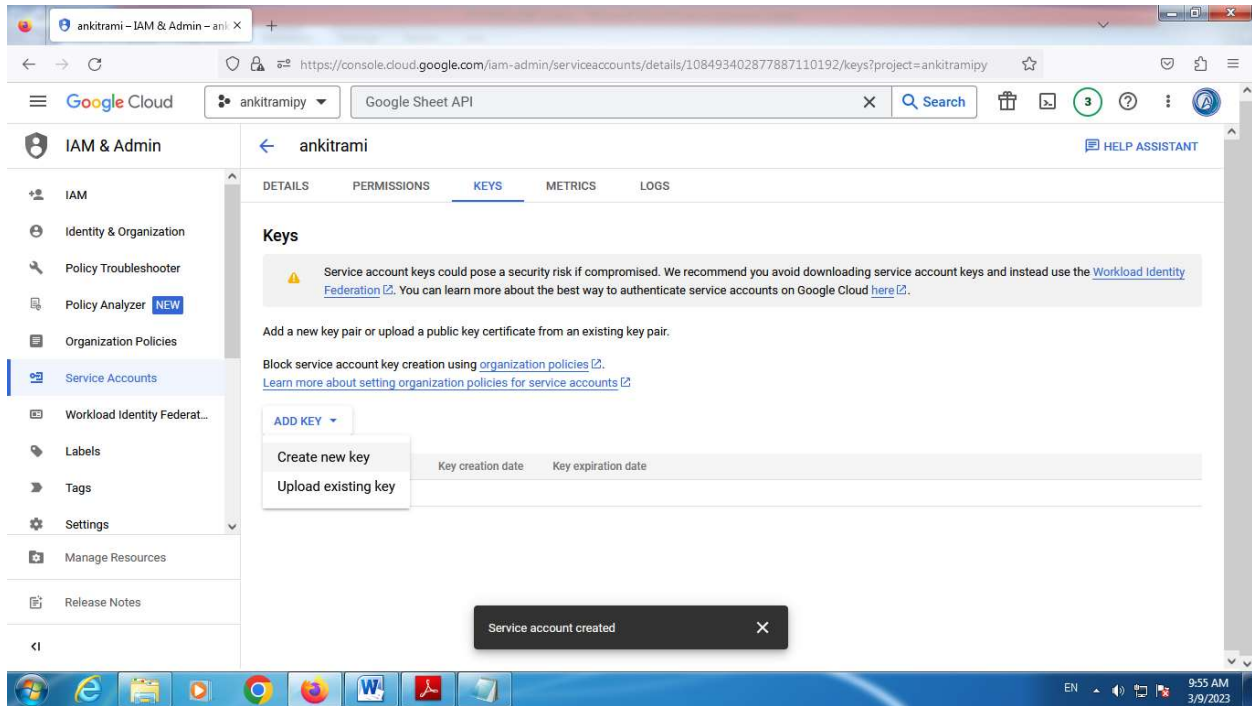


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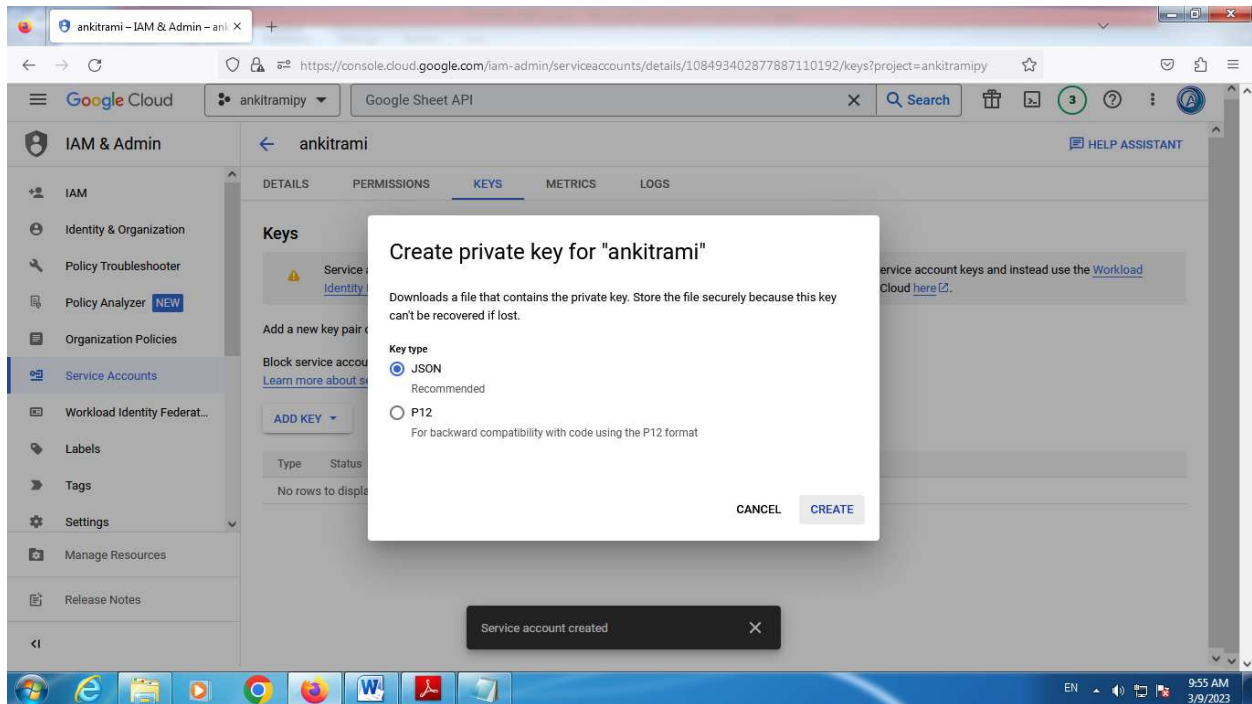
- ✓ Step-7 CREATE & DOWNLOAD JSON in Google Sheet
- API Google Cloud Console Project
- ✓ Click 3 Dots and Click manage Key Option



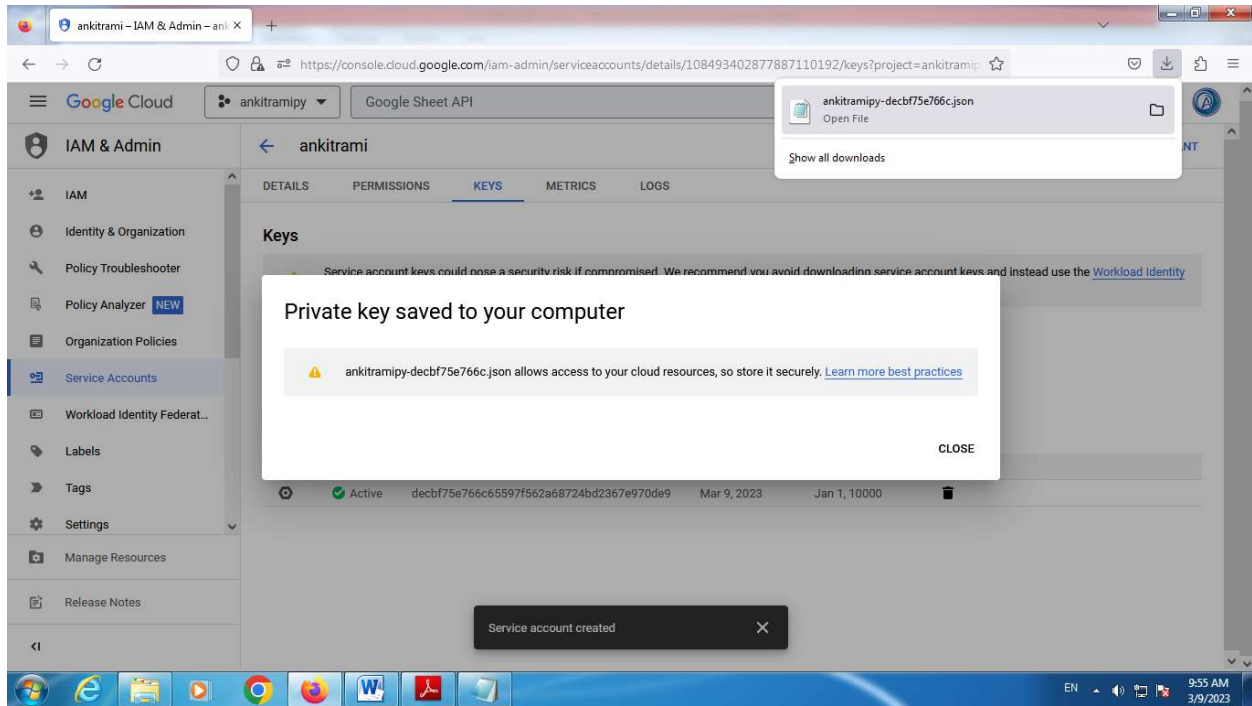
✓ Click Add Key Option and Click Create New



✓ Select JSON Option and Click to Create

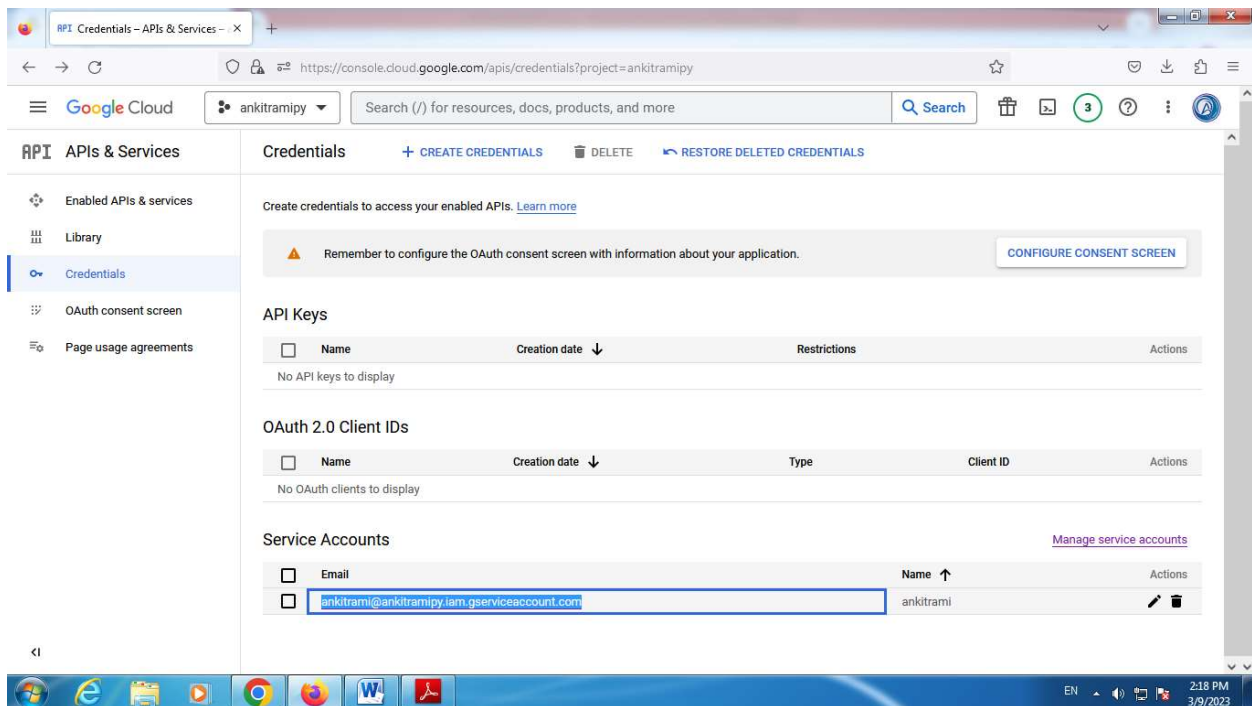


✓ Then Automatically Download JSON File in your System



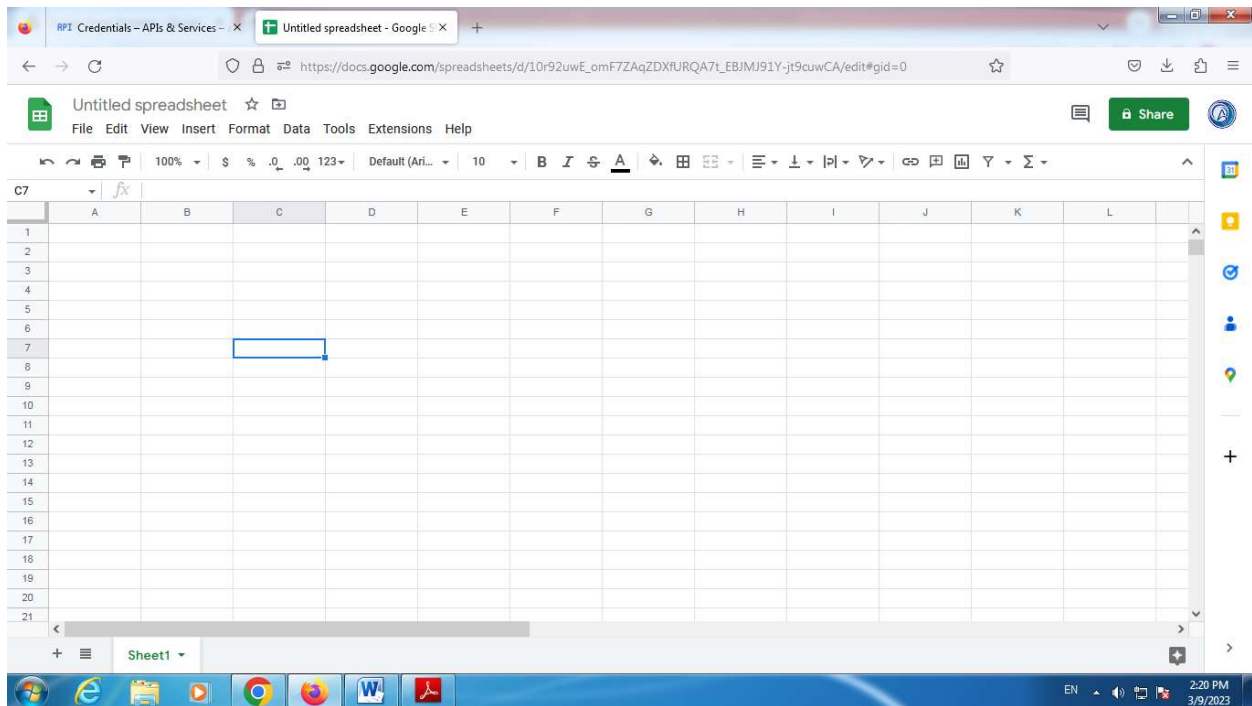
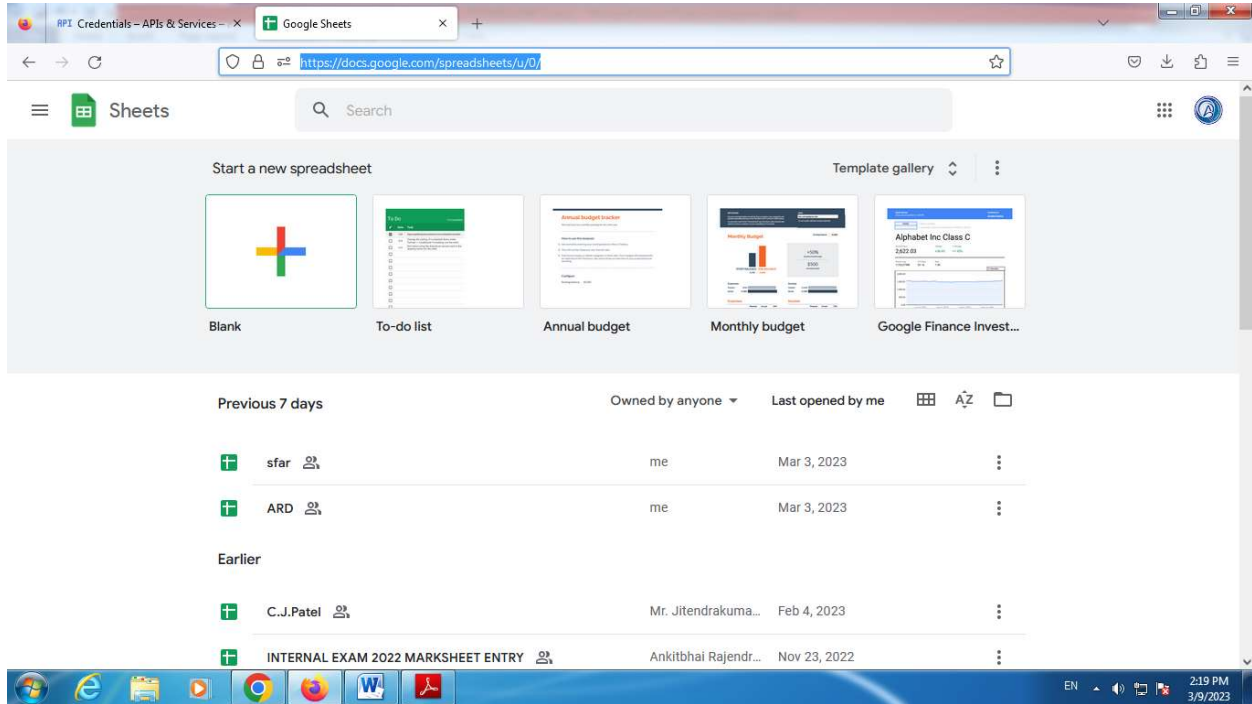
✓ Step-8 Configuration Service Account Email ID to Your Google Sheet

✓ .Copy Service Account Email Like



✓ Create New Google Sheet

✓ <https://docs.google.com/spreadsheets/u/0/>



✓ Rename New Google Sheet Like “ars”, Rename Worksheet Name, and Fill Data

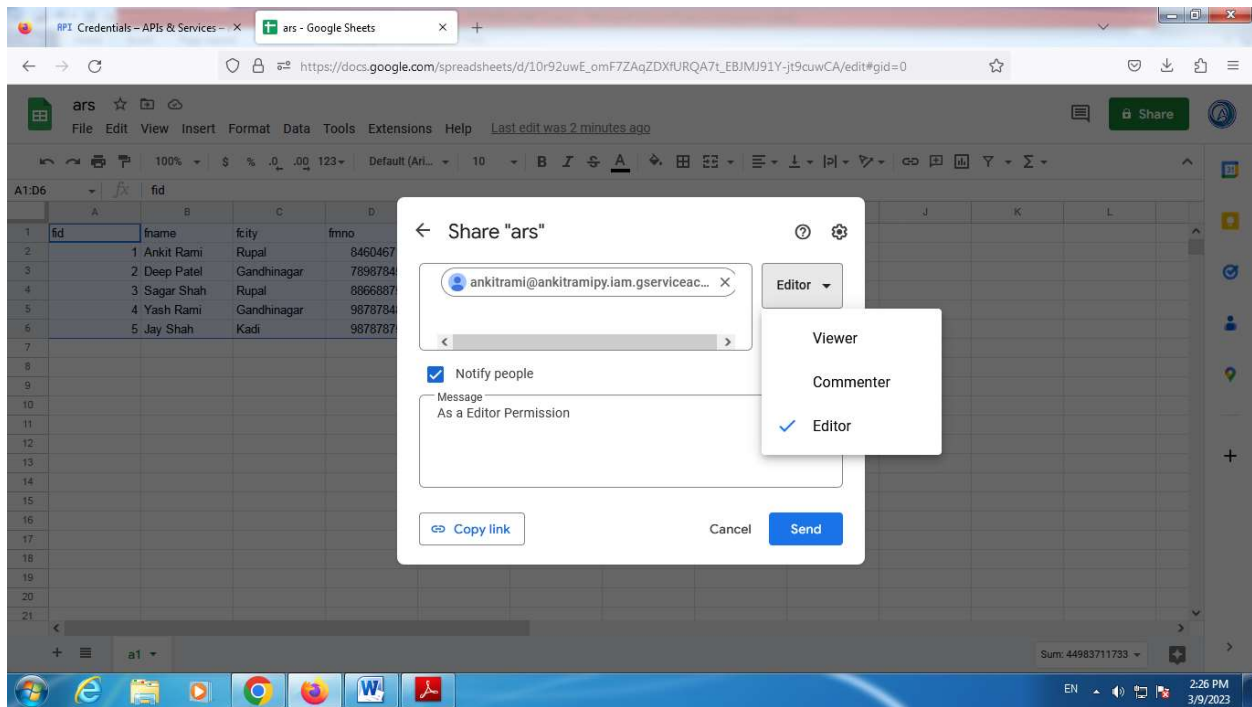
The screenshot shows a Google Sheet titled 'ars' with a table containing 5 rows of data. The columns are labeled 'fid', 'fname', 'fcity', and 'fmno'. The data is as follows:

| fid | fname | fcity | fmno |
|-----|------------|-------------|------------|
| 1 | Ankit Rami | Rupal | 8460467193 |
| 2 | Deep Patel | Gandhinagar | 7898784545 |
| 3 | Sagar Shah | Rupal | 8866887581 |
| 4 | Yash Rami | Gandhinagar | 9878784854 |
| 5 | Jay Shah | Kadi | 9878787545 |

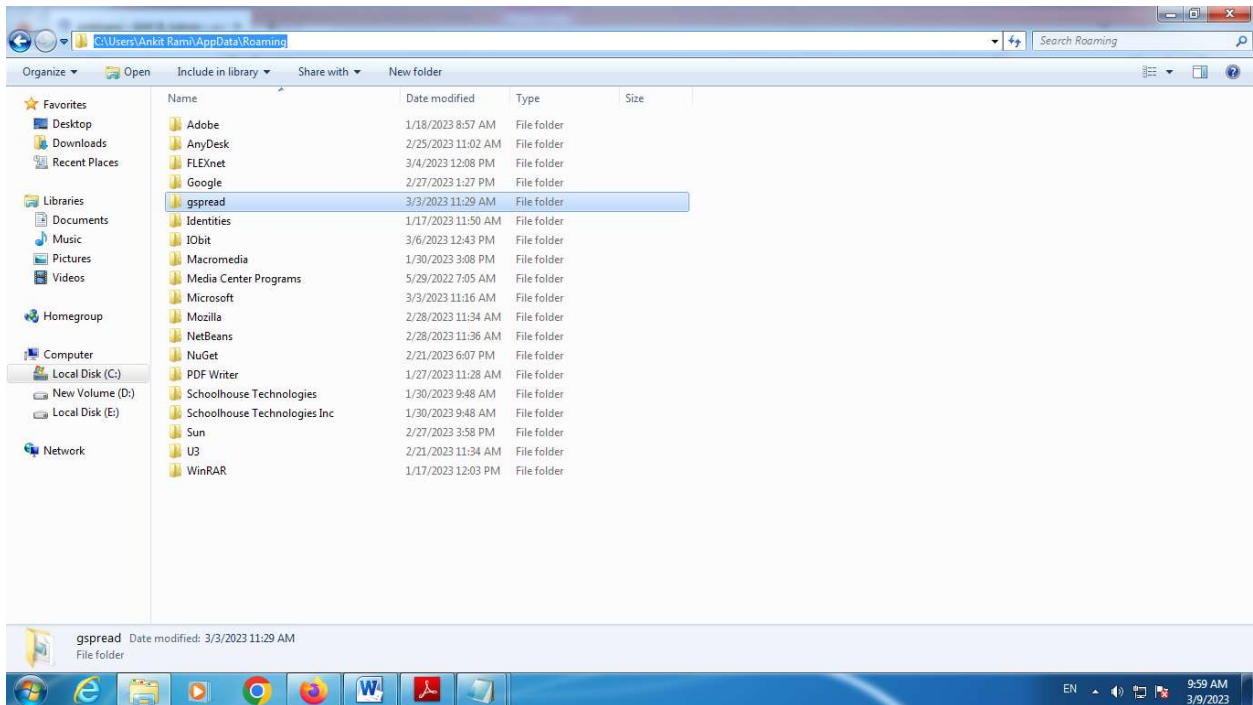
✓ Share Google Sheet to Service Account Email Id

The screenshot shows the Google Cloud console interface. The 'APIs & Services' section is active, and the 'Credentials' page is displayed. The 'Service Accounts' section shows a list of service accounts, with one account highlighted:

| Email | Name | Actions |
|--------------------------------------------------------------------------------------------------------------|-----------|---------|
| ankitrani@ankitrami.iam.gserviceaccount.com | ankitrani | |

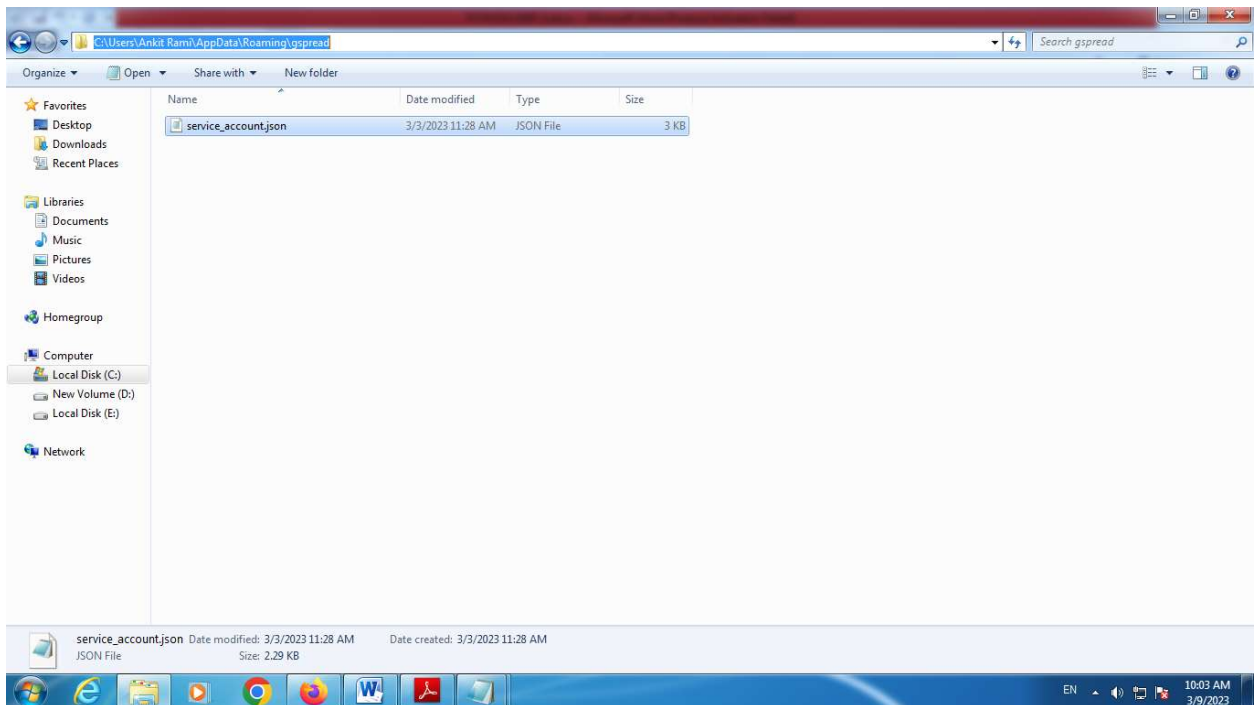


✓ Step-9 Configuration JSON File in Your Computer C:\Users\Ankit Rami\AppData\Roaming

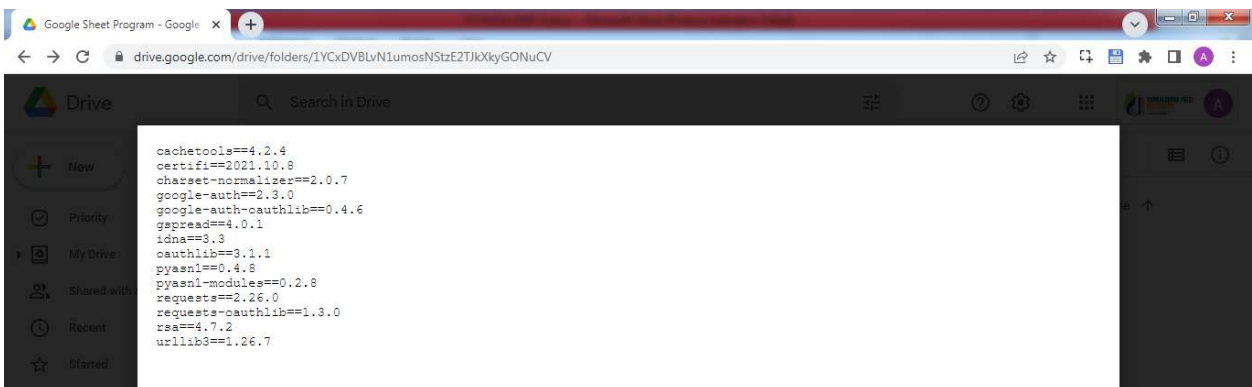


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- ✓ Create “gsread” folder in this path
“C:\Users\Your System Name(Ankit) Rami\AppData\Roaming”
- ✓ Downloaded JSON file Copy in This Folder and
Rename JSON File “service_account.json”
Path - C:\Users\Ankit Rami\AppData\Roaming\gsread



- ✓ Step-10 Download requirements.txt File in Your
Computer and Install all Python Packages.
- ✓ https://drive.google.com/file/d/1joRDJ5Q6gtqEsgnx8Ev2-cKvsjOTaNsC/view?usp=share_link



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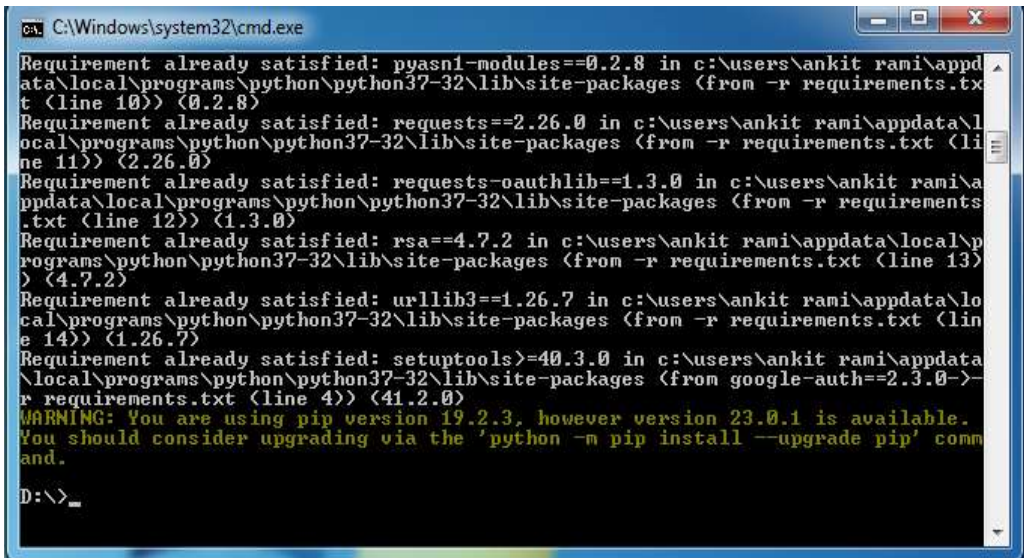
- ✓ Use the **pip install -r requirements.txt** command to install all of the Python modules and packages listed in your requirements.txt file.
- ✓ Select File Drive Path Ex- My **requirements.txt** File Save in D:/ Drive than Frist go to D:/ Drive and then run command



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Ankit Rami>d:
D:\>pip install -r requirements.txt_
```

- ✓ Than Wait to Download and Config Modules in Python



```
C:\Windows\system32\cmd.exe
Requirement already satisfied: pyasn1-modules==0.2.8 in c:\users\ankit rami\appdata\local\programs\python\python37-32\lib\site-packages (from -r requirements.txt (line 10)) (0.2.8)
Requirement already satisfied: requests==2.26.0 in c:\users\ankit rami\appdata\local\programs\python\python37-32\lib\site-packages (from -r requirements.txt (line 11)) (2.26.0)
Requirement already satisfied: requests-oauthlib==1.3.0 in c:\users\ankit rami\appdata\local\programs\python\python37-32\lib\site-packages (from -r requirements.txt (line 12)) (1.3.0)
Requirement already satisfied: rsa==4.7.2 in c:\users\ankit rami\appdata\local\programs\python\python37-32\lib\site-packages (from -r requirements.txt (line 13)) (4.7.2)
Requirement already satisfied: urllib3==1.26.7 in c:\users\ankit rami\appdata\local\programs\python\python37-32\lib\site-packages (from -r requirements.txt (line 14)) (1.26.7)
Requirement already satisfied: setuptools==40.3.0 in c:\users\ankit rami\appdata\local\programs\python\python37-32\lib\site-packages (from google-auth==2.3.0->-r requirements.txt (line 4)) (41.2.0)
WARNING: You are using pip version 19.2.3, however version 23.0.1 is available.
You should consider upgrading via the 'python -m pip install --upgrade pip' command.

D:\>_
```


✓ Step-11 Download Script File and Config Filename and Worksheet Name.

```

scriptpy - D:\scriptpy (3.7.7)
File Edit Format Run Options Window Help
import gspread
sa = gspread.service_account()
#Write Your File Name
sh = sa.open("ars")
#Write Your Worksheet Name
wks = sh.worksheet("a1")
#Total Worksheet Rows Cols Count
print('Rows: ', wks.row_count)
print('Cols: ', wks.col_count)
#Access Worksheet Rows Cols Value
print(wks.acell('A4').value)
print(wks.cell(3, 4).value)
print(wks.get('A4:B4'))
#Print all Worksheet Rows Cols Values
print(wks.get_all_records())
print(wks.get_all_values())
#Update Worksheet Rows Cols Values
wks.update('A3', 'Ankit Rami')
#wks.update('D2:E3', [['Engineering', 'Tennis'], ['Business', 'Teacher']])
#wks.update('F2', '=UPPER(E2)', raw=False)
#Delete Worksheet Rows Cols Values
wks.delete_rows(25)

Python 3.7.7 Shell
File Edit Shell Debug Options Window Help
Python 3.7.7 (tags/v3.7.7:d7c567b08f, Mar 10 2020, 09:44:33) [MSC v.1900 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
----- RESTART: D:\script.py -----
Rows: 999
Cols: 26
3
7898784545
[['fid', 'Sagar Shah']]
[['fid': 1, 'fname': 'Ankit Rami', 'fcity': 'Rupal', 'fmno': 8460467193], {'fid': 2, 'fname': 'Deep Patel', 'fcity': 'Gandhinagar', 'fmno': 7898784545}, {'fid': 3, 'fname': 'Sagar Shah', 'fcity': 'Rupal', 'fmno': 8866887581}, {'fid': 4, 'fname': 'Yash Rami', 'fcity': 'Gandhinagar', 'fmno': 9878784854}, {'fid': 5, 'fname': 'Jay Shah', 'fcity': 'Kadi', 'fmno': 9878787545}]
[['fid', 'fname', 'fcity', 'fmno'], ['1', 'Ankit Rami', 'Rupal', '8460467193'], ['2', 'Deep Patel', 'Gandhinagar', '7898784545'], ['3', 'Sagar Shah', 'Rupal', '8866887581'], ['4', 'Yash Rami', 'Gandhinagar', '9878784854'], ['5', 'Jay Shah', 'Kadi', '9878787545']]
>>>
Ln:12 Col:4
21
24:2 PM
3/9/2023

```

✓ Update Sheet Data Using Python to Google Sheet

| | A | B | C | D | E | F | G | H | I | J | K | L |
|----|------------|-------|------------|-------------|------------|---|---|---|---|---|---|---|
| 1 | fid | fname | fcity | fmno | | | | | | | | |
| 2 | | 1 | Ankit Rami | Rupal | 8460467193 | | | | | | | |
| 3 | Ankit Rami | 2 | Deep Patel | Gandhinagar | 7898784545 | | | | | | | |
| 4 | | 3 | Sagar Shah | Rupal | 8866887581 | | | | | | | |
| 5 | | 4 | Yash Rami | Gandhinagar | 9878784854 | | | | | | | |
| 6 | | 5 | Jay Shah | Kadi | 9878787545 | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
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| 19 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | |

Reference Link

1. <https://www.youtube.com/channel/UCWbJh2iQ8w-8nrU0Xpjpw7g>
2. <https://amit.arinfoway.com/>
3. <https://docs.gspread.org/en/latest/>

 **Any Query Contact Us**

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Website - amit.arinfoway.com



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