

Cloud Natural Language API: Qwik Start

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1. Introduction

This lab demonstrates the **Cloud Natural Language API** to perform **entity analysis** on text.

Key features explored:

- **Entity Recognition:** Identify people, places, and events.
- **Salience Scoring:** Measure entity importance in text.
- **Metadata Extraction:** Fetch Wikipedia links for entities.

2. Task 1: Setting Up API Access

Steps Executed:

Created a Service Account:

```
gcloud iam service-accounts create my-natlang-sa \
--display-name "my natural language service account"
```

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to qwiklabs-gcp-01-44a072373266.
Use 'gcloud config set project [PROJECT_ID]' to change to a different project.
student_04_ddfc08c90dbe@cloudshell:~ (quiklabs-gcp-01-44a072373266)$ export GOOGLE_CLOUD_PROJECT=$(gcloud config get-value core/pro
ject)
Your active configuration is: [cloudshell-12078]
student_04_ddfc08c90dbe@cloudshell:~ (quiklabs-gcp-01-44a072373266)$
```

Generated API Key (JSON):

```
gcloud iam service-accounts keys create ~/key.json
```

--iam-account [my-natlang-sa@\\${GOOGLE_CLOUD_PROJECT}.iam.gserviceaccount.com](#)

```
student_04_ddfc08c90dbe@cloudshell:~ (qwiklabs-gcp-01-44a072373266) $ gcloud iam service-accounts create my-natlang-sa \
--display-name "my natural language service account"
Created service account [my-natlang-sa].
student_04_ddfc08c90dbe@cloudshell:~ (qwiklabs-gcp-01-44a072373266) $
```

Set Environment Variable:

export GOOGLE_APPLICATION_CREDENTIALS="/home/USER/key.json"

```
student_04_ddfc08c90dbe@cloudshell:~ (qwiklabs-gcp-01-44a072373266) $ gcloud iam service-accounts keys create ~/key.json \
--iam-account my-natlang-sa@${GOOGLE_CLOUD_PROJECT}.iam.gserviceaccount.com
Created key [34841ea88f449c16d35c8975feb866a19508728e] of type [json] as [/home/student_04_ddfc08c90dbe/key.json] for [my-natlang-sa@qwiklabs-gcp-01-44a072373266.iam.gserviceaccount.com]
student_04_ddfc08c90dbe@cloudshell:~ (qwiklabs-gcp-01-44a072373266) $
```

Purpose:

- Authenticate requests to the Natural Language API.

3. Task 2: Entity Analysis

Text Analyzed:

"Michelangelo Caravaggio, Italian painter, is known for 'The Calling of Saint Matthew'."

The screenshot displays the Google Cloud Platform console interface. The left sidebar shows the navigation menu with 'VM instances' selected. The main content area shows a table of VM instances with one instance named 'linux-instance' in the 'europe-west4-c' zone. Below the table, there are several 'Related actions' cards for exploring protection, monitoring VMs, and exploring logs. At the bottom, an 'SSH-in-browser' terminal window is open, showing the execution of the command: `gcloud ml language analyze-entities --content="Michelangelo Caravaggio, Italian painter, is known for 'The Calling of Saint Matthew'." > result.json`.

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
<input checked="" type="checkbox"/>	linux-instance	europe-west4-c			10.164.0.2 (nic0)	34.90.181.64 (nic0)	SSH

API Command:

gcloud ml language analyze-entities --content="Michelangelo Caravaggio..." > result.json

```
SSH-in-browser
student-04-ddfc08c90dbe@linux-instance:~$ gcloud ml language analyze-entities --content="Michelangelo Caravaggio, Italian painter, is known for 'The Calling of Saint Matthe
w'." > result.json
student-04-ddfc08c90dbe@linux-instance:~$
```

```
SSH-in-browser
{
  "mentions": [
    {
      "text": {
        "beginOffset": 25,
        "content": "Italian"
      },
      "type": "PROPER"
    },
    {
      "metadata": {
        "mid": "/m/03rjj",
        "wikipedia_url": "https://en.wikipedia.org/wiki/Italy"
      },
      "name": "Italian",
      "salience": 0.13981608,
      "type": "LOCATION"
    },
    {
      "mentions": [
        {
          "text": {
            "beginOffset": 56,
            "content": "The Calling of Saint Matthew"
          },
          "type": "PROPER"
        },
        {
          "metadata": {
            "mid": "/m/085_p7",
            "wikipedia_url": "https://en.wikipedia.org/wiki/The_Calling_of_Saint_Matthew"
          },
          "name": "The Calling of Saint Matthew",
          "salience": 0.031136045,
          "type": "EVENT"
        }
      ],
      "language": "en"
    }
  ]
}
```

4. Key Findings

- ✓ **Precision:** Accurately identified entities (person, location, event).
- ✓ **Contextual Links:** Provided Wikipedia URLs for deeper research.
- ✓ **Salience Scoring:** Quantified entity importance (Caravaggio \approx 83% dominant).

5. Conclusion

This lab successfully demonstrated:

- **API Setup:** Service accounts and credentials for secure access.
- **Entity Analysis:** Extracted and classified text entities with metadata.

Future Applications:

- **Content Moderation:** Flag improper entities in user-generated text.
- **Research Automation:** Extract key figures/events from academic papers.

