Recommendation Systems on Google Cloud

Course · 1 day
60% complete
Professional Machine Learning Engineer Certification Learning Path navigate_next Recommendation Systems on Google Cloud navigate_next Neural Networks for Recommendation Systems

ML on GCP: Hybrid Recommendations with the MovieLens Dataset

2 hours Free

Overview

The matrix factorization approach does not use any information about users or movies beyond what is available from the ratings matrix. However, we will often have user information (such as the city they live, their annual income, their annual expenditure, etc.) and we will almost always have more information about the products in our catalog. How do we incorporate this information in our recommendation model?

The answer lies in recognizing that the user factors and product factors that result from the matrix factorization approach end up being a concise representation of the information about users and products available from the ratings matrix. We can concatenate this information with other information we have available and train a regression model to predict the rating.

Objectives

In this lab, you will:

- Know how to extract user and product factors from a BigQuery Matrix Factorizarion Model
- Know how to format inputs for a BigQuery Hybrid Recommendation Model

Setup and requirements

For each lab, you get a new Google Cloud project and set of resources for a fixed time at no cost.

1. Sign in to Qwiklabs using an **incognito window**.
2. Note the lab's access time (for example, `1:15:00`), and make sure you can finish within that time.
   There is no pause feature. You can restart if needed, but you have to start at the beginning.
3. When ready, click **Start lab**.
4. Note your lab credentials (**Username** and **Password**). You will use them to sign in to the Google Cloud Console.
5. Click **Open Google Console**.
6. Click **Use another account** and copy/paste credentials for **this** lab into the prompts.
   If you use other credentials, you'll receive errors or **incur charges**.
7. Accept the terms and skip the recovery resource page.

Note: Do not click **End Lab** unless you have finished the lab or want to restart it. This clears your work and removes the project.

Task 1. Launch AI Platform Notebooks

1. In the Google Cloud Console, on the **Navigation Menu**, click **Vertex AI > Workbench**.
2. Click **Enable Notebooks API**.
3. On the Notebook instances page, click **New Notebook > TensorFlow Enterprise > TensorFlow Enterprise 2.11 > Without GPUs**.
4. In the **New notebook instance** dialog, confirm the name of the deep learning VM.
5. If you don't want to change the region and zone, leave all settings as they are and then click **Create**. The new VM will take 2-3 minutes to start.
6. Click **Open JupyterLab**.
   A JupyterLab window will open in a new tab.

Task 2. Clone course repo within your AI Platform Notebooks instance

To clone the training-data-analyst notebook in your JupyterLab instance:

1. In JupyterLab, to open a new terminal, click the **Terminal** icon.
2. At the command-line prompt, run the following command:

   ```
   git clone https://github.com/GoogleCloudPlatform/training-data-analyst
   ```

3. To confirm that you have cloned the repository, double-click on the training-data-analyst directory and ensure that you can see its contents.
   The files for all the Jupyter notebook-based labs throughout this course are available in this directory.

Task 3. Hybrid recommendations with the Movie Lense dataset

Duration is 60 min

1. In the notebook interface, navigate to **training-data-analyst > courses > machine_learning > deepdive2 > recommendation_systems > labs > als_bqml_hybrid.ipynb**.
2. In the notebook interface, click on **Edit > Clear All Outputs** (click on Edit, then in the drop-down menu, select Clear All Outputs).
3. Carefully read through the notebook instructions and fill in lines marked with #TODO where you need to complete the code as needed.

Tip: To run the current cell you can click the cell and hit **shift** + **enter**. Other cell commands are found in the notebook UI under **Run**.

- Hints may also be provided for the tasks to guide you along. Highlight the text to read the hints (they are in white text).
- If you need more help, you may take a look at the complete solution by navigating to **training-data-analyst > courses > machine_learning > deepdive2 > recommendation_systems > solutions** and opening **als_bqml_hybrid.ipynb**.

End your lab

When you have completed your lab, click **End Lab**. Google Cloud Skills Boost removes the resources you've used and cleans the account for you.

You will be given an opportunity to rate the lab experience. Select the applicable number of stars, type a comment, and then click **Submit**.

The number of stars indicates the following:

- 1 star = Very dissatisfied
- 2 stars = Dissatisfied
- 3 stars = Neutral
- 4 stars = Satisfied
- 5 stars = Very satisfied

You can close the dialog box if you don't want to provide feedback.

For feedback, suggestions, or corrections, please use the **Support** tab.