

Lab 1a: Membuat AI Agent dengan watsonx.ai dan crew

Pada lab ini, kita akan membuat *Sales Analyzer Agent* menggunakan **watsonx.AI** dan **Crew AI**. Agent tersebut akan digunakan untuk melakukan analisis data dari suatu produk untuk melakukan proses *procurement*.

Notes: File yang digunakan merupakan file yang dapat di-*download* dari folder “”

Tahapan untuk membuat Agent

Step 1: Membuat “Project”

- Jika ini pertama kali anda menggunakan *account* ini. Maka anda perlu membuat *project* sebelum menggunakan *Agent Lab*. Selain itu, anda dapat menggunakan *project* yang telah ada.

IBM watsonx

2948357 - itz-watsonx-031 Dallas

Create a project

Start with a new, blank project or select from where to import an existing project.

+ New

- Local file
- Sample

Define details

Name

Lab1

Description (optional)

What's the purpose of this project?

Tags (optional)

Add tags

Add tags to make projects easier to find. To add tags, separate them with commas and press Enter.

Storage

itzcos-69400056k5-y1q1

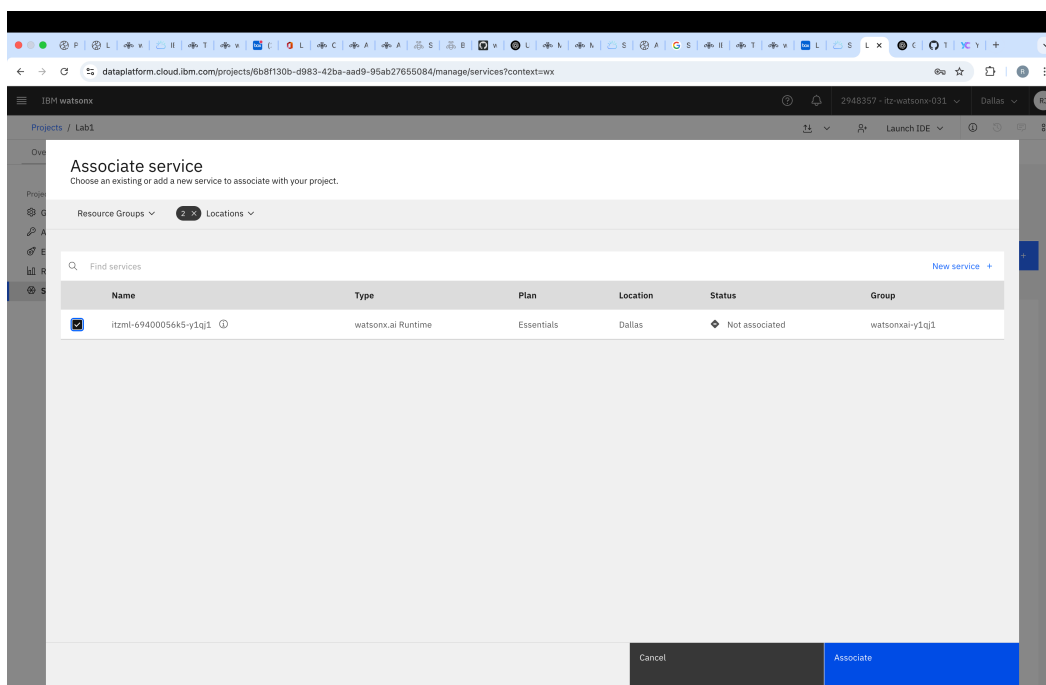
Project includes integration with [Cloud Object Storage](#) for storing project assets.

Advanced settings

Cancel Create

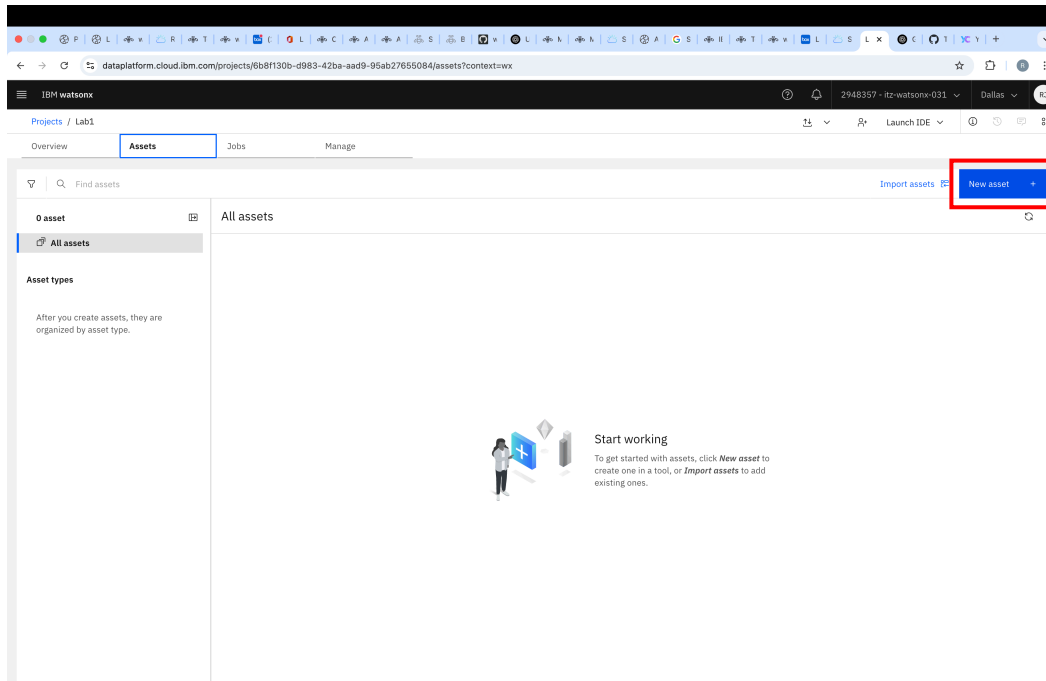
Tahap 2: Mengasosiasikan watsonx.Ai dengan watsonx.ai Runtime.

- Setelah membuat *project*, buka **Manage** → **Services & Integrations** → **Associate Service**.
- Pilih **watsonx.ai** dan asosiasikan dengan *project* yang ada.



Step 3: Add a New Asset Tahap 3: Tambahkan Asset Baru

- Pergi ke halaman *Assets Tab* dan klik *New Asset*

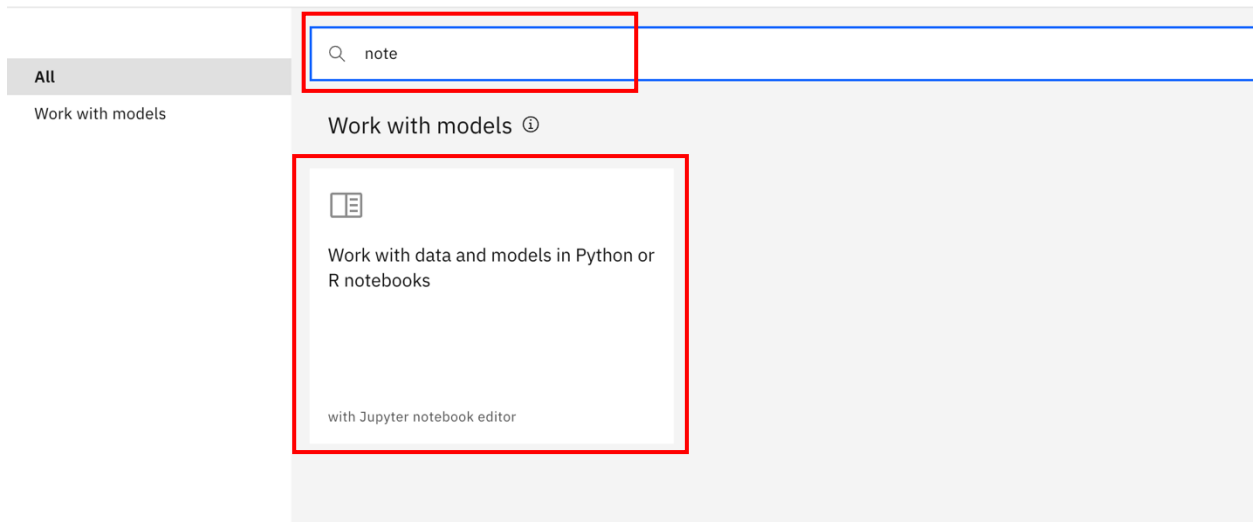


Step 4: Create the notebooks Tahap 4: Buat notebooknya.

- Cari "Work with data and models in Python or R notebooks" dan klik "Create a notebook"

What do you want to do?

Select a task based on your goal. You'll use a tool to create an asset for that goal.



Tahap 5: Upload files yang telah diberikan

- Klik “Local File.”
- Upload notebook untuk “work with data and models in Python or R notebooks” menggunakan *Browse*
 - SalesAnalysis.ipynb
 - SalesAnalysis_query.ipynb
- Klik *Create* untuk membuat *notebook*

Work with data and models in Python or R notebooks

Define the details to create a notebook asset and open it in the Jupyter notebook editor tool.

The screenshot shows the 'Define details' form for creating a notebook asset. On the left, a sidebar contains a 'Local file' button highlighted with a red rectangle. The main form area is divided into two sections: 'Local asset' and 'Define configuration'. The 'Local asset' section includes a text input for the file name 'salesAnalysis.ipynb', a 'Name' field with the value 'salesAnalysis', and a 'Description (optional)' text area. The 'Define configuration' section features a 'Select runtime' dropdown menu set to 'Runtime 24.1 on Python 3.11 XS (2 vCPU 8 GB RAM)'. Below this, a note states: 'The selected runtime has 2 vCPU and 8 GB RAM. It consumes 1 capacity unit per hour. [Learn more](#) about capacity unit hours and watsonx.ai Studio pricing plans.' At the bottom right, there are 'Cancel' and 'Create' buttons, with the 'Create' button highlighted by a red rectangle.

Work with data and models in Python or R notebooks

Define the details to create a notebook asset and open it in the Jupyter notebook editor tool.

The screenshot shows the 'Work with data and models in Python or R notebooks' form. On the left, a sidebar contains a 'Local file' button highlighted with a blue rectangle. The main form area is a large dashed box containing an illustration of a person dropping a file into a bin. To the right of the illustration, the text reads: 'Drop IPYNB file here or browse for file to upload. Add a notebook (IPYNB) file that contains your notebook. You can only upload files up to 52 MB.' Below this text is a blue 'Browse' button. At the bottom right, there are 'Cancel' and 'Create' buttons.

Step 6: Configure the notebook

Tahap 6: Konfigurasi API Key pada notebook

- Masukkan *key* yang dibutuhkan untuk dapat menjalankan *notebook*.
- Buat *IBM Cloud API Key* atau dapatkan dari anggota tim lainnya dan ubah parameter “*api_key*” untuk menggunakan *LLM*. Lalu, verifikasi *api_base* sesuai dengan instans *watsonx* yang disediakan
- *DB_Password* dapat ditemukan di “*DB Connection Details.boxnote*”

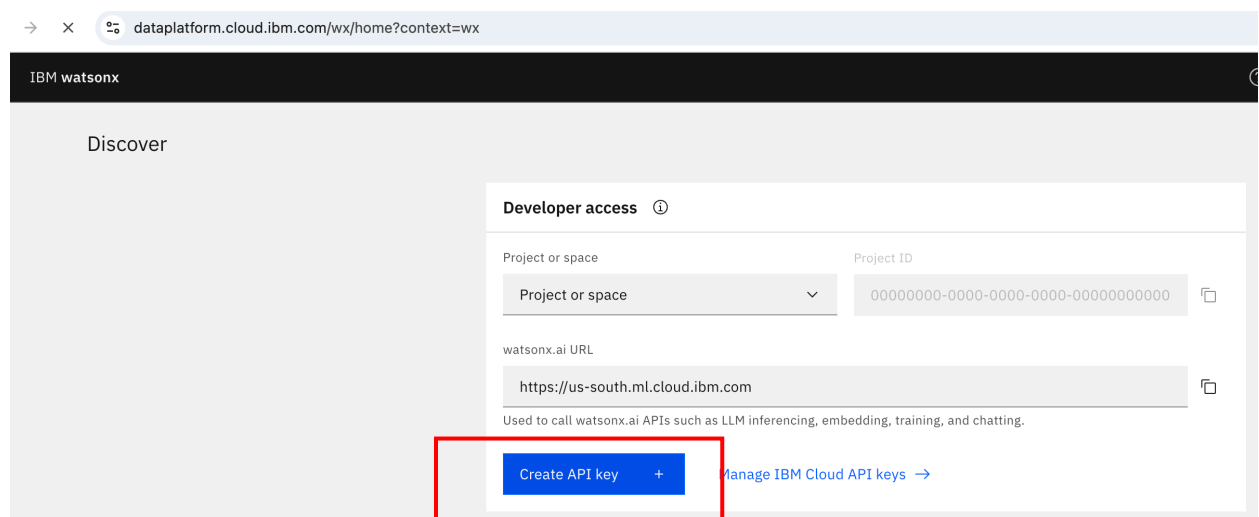
```
[*]: DB_URL = "cb0cfae7-372d-4047-9bf9-882289cd9910.blijti4d0v0nkr55oei0.databases.appdomain.cloud"
DB_PORT = "32240"
DB_NAME = "marcht3db"
DB_USER = "ibm_cloud_d2c0138f_5cb3_499e_8043_6a959fb57913"
DB_PASSWORD = input("Enter password for the user:")
```

Enter password for the user:

```
[9]: nl2sql = NL2SQLTool(db_uri=f"postgresql://{DB_USER}:{DB_PASSWORD}@{DB_URL}:{DB_PORT}/{DB_NAME}")
```

```
• [10]: # Initialize LLM
llm_db = LLM(
    api_key="YOUR-API-KEY",
    api_base = "https://us-south.ml.cloud.ibm.com",
    model="watsonx/meta-llama/llama-3-3-70b-instruct",
    params={
        "decoding_method": "greedy",
        "max_new_tokens": 15000,
        "temperature": 0,
        "repetition_penalty": 1.05
    }
)
```

- Anda juga dapat membuat API key pada *homepage*. Anda dapat menyimpan *api_key* pada *local machine* anda untuk penggunaan selanjutnya.



Step 7: Run the notebook

Tahap 7: Jalankan *notebook* tersebut.

- Ikuti setiap cells yang terdapat pada *notebook* dan jalankan *agent* untuk melakukan analisis sales. Beberapa query telah diberikan dan dijadikan “*comment*” untuk dilakukan pengetesan pada hasilnya.


```
#Example Question 1: sales of Xtralife for last 3 months
#Example Question 2: Percentage change of monthly sales of Xtralife every month
user_question = input("Enter question: ")

query_agent=create_dbagent()
generation_task = create_generation_task(query_agent, user_question)

generation_crew = Crew(
    agents=[query_agent],
    tasks=[generation_task],
    verbose=True
)

crew_output = generation_crew.kickoff()
print ("Answer:..... \n" ,crew_output)
```

Enter question: Percentage change of monthly sales of Xtralife every month

 **Congratulations! You have successfully created an AI-powered Sales analyzer Agent powered by watsonx.ai and crew.ai. Happy Coding! 🎯**