

Team: Solutioning-US HCS Solutioners

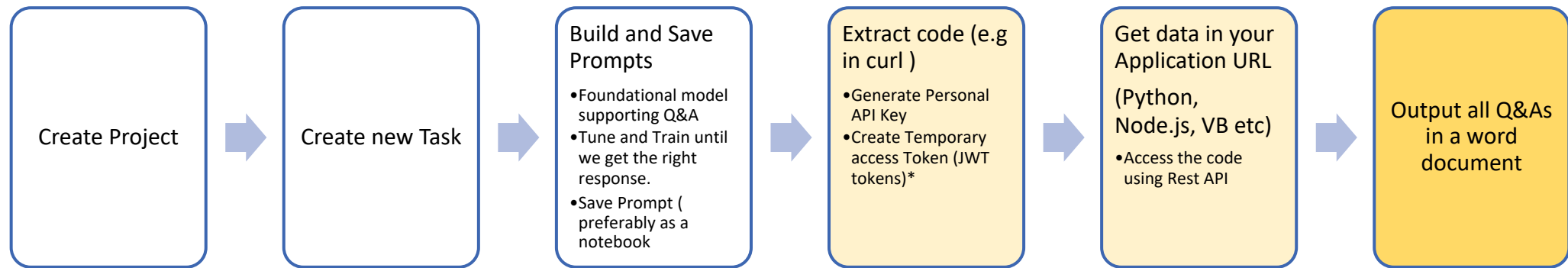
Use Case: Proposal content

Track: 3 - Support customer service representatives with
FAQ answers using watsonx.ai

Aug,2023

Watsonx flow for the challenge

Usecase Architecture



*Generate a new Token
Write a code to generate a token every hour (Give the API key and Project ID in the program)

Moderate to extensive coding

Extensive coding



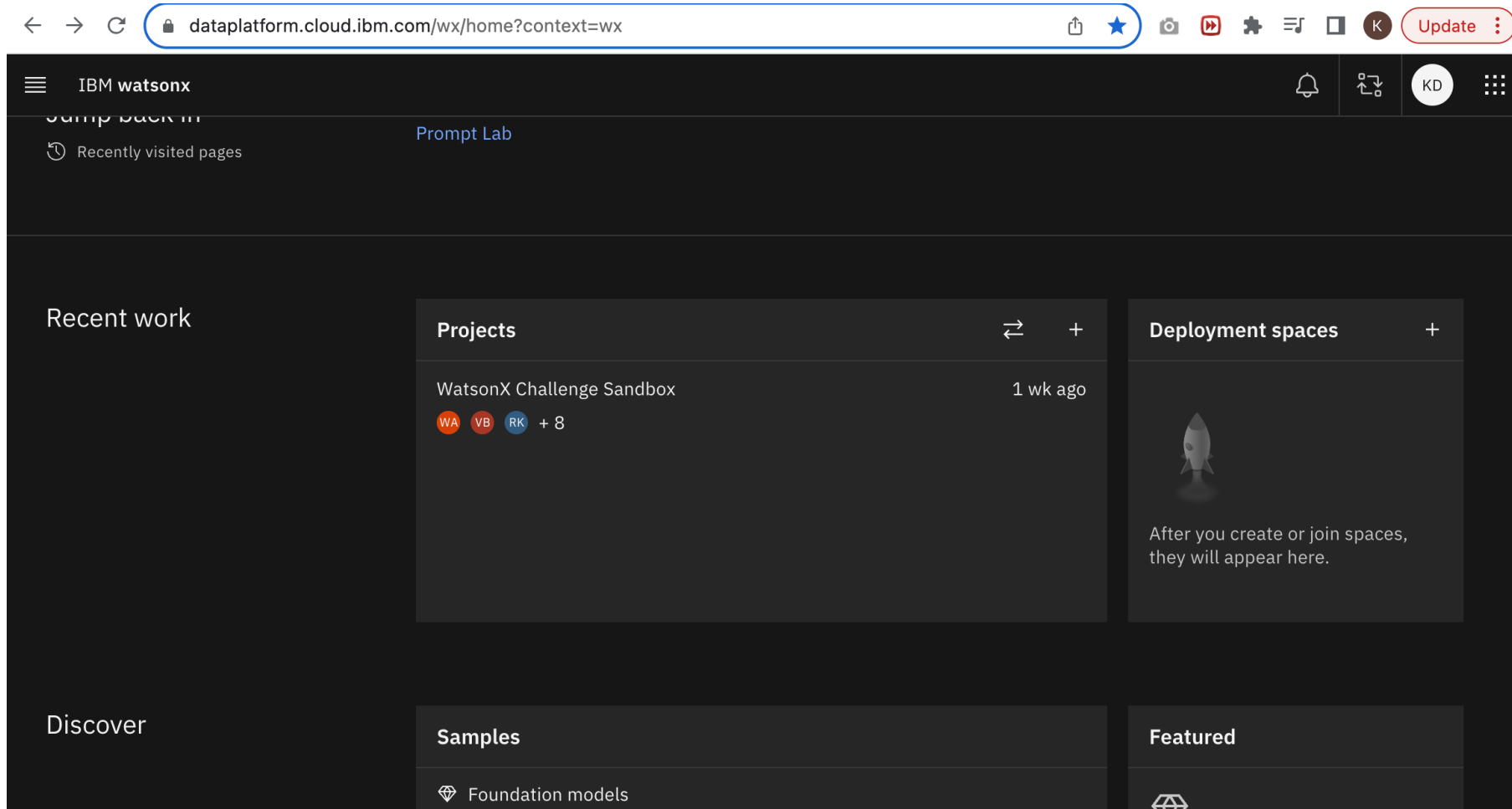
Tasks during watsonx challenge

- ☐ Identify the Question or Questions we need to curate (tune and train)
- ☐ Select an appropriate foundational model
 - ☐ Give the Instruction command
 - ☐ Adjust the parameters
 - ☐ Tune the model
 - ☐ Get the desired answer
- ☐ Save the Prompt as a notebook
- ☐ Get the data into an application or thru command prompt
 - ☐ Python
 - ☐ Shell script etc
- ☐ Generate a word or ppt for all set of Questions or specific question that we plan to train
- ☐ Use watsonx orchestrate to store the output file in the box.










Create Project





Project sandbox creation in watsonx dataplatform portal

<https://dataplatfrom.cloud.ibm.com/>




Watsonx Dataplatform capabilities exploration


← → ↻ dataplatform.cloud.ibm.com/wx/home?context=wx#         [Update](#) 



☰ IBM watsonx    

Welcome back, Krishna

Train, validate, tune and deploy AI models.



[Customize my journey](#) 

Open in: WatsonX Challenge Sandbox 



Experiment with foundation models and build prompts

with Prompt Lab



Build machine learning models automatically

with AutoAI


Work with data and models in Python or R notebooks

with Jupyter notebook editor

Prepare and visualize data

with Data Refinery

[Collapse](#) 

Prompt Lab Exploration

https://dataplatform.cloud.ibm.com/wx/prompts?context=wx&project_id=34868e5b-6aed-4730-a8a9-a367fb3c82d1

IBM watsonx

Projects / WatsonX Challenge Sandbox /

AI guardrails on

Prompt Lab

New prompt + Save work

New (unsaved)

StructuredFreeform

Model: flan-ul2-20b

Set up

Instruction (optional)
Tell the model what to do. For example: Summarize the transcript.

Examples (optional)

Input:	Output:
Enter your example input here	Enter your desired output

Generate

Projects / WatsonX Challenge Sandbox /

AI guardrails on

Select a foundation model

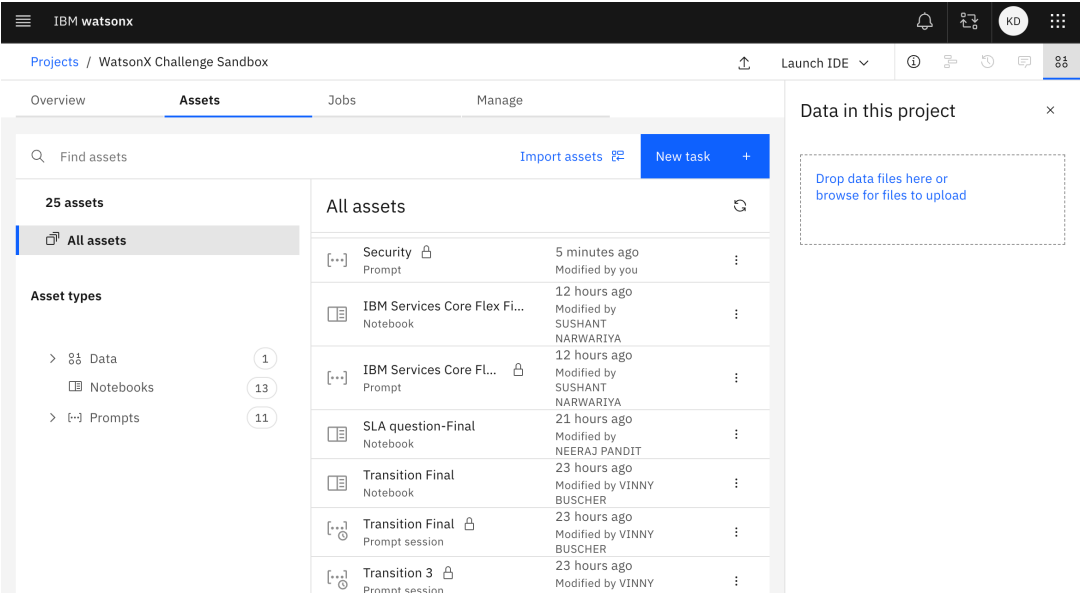
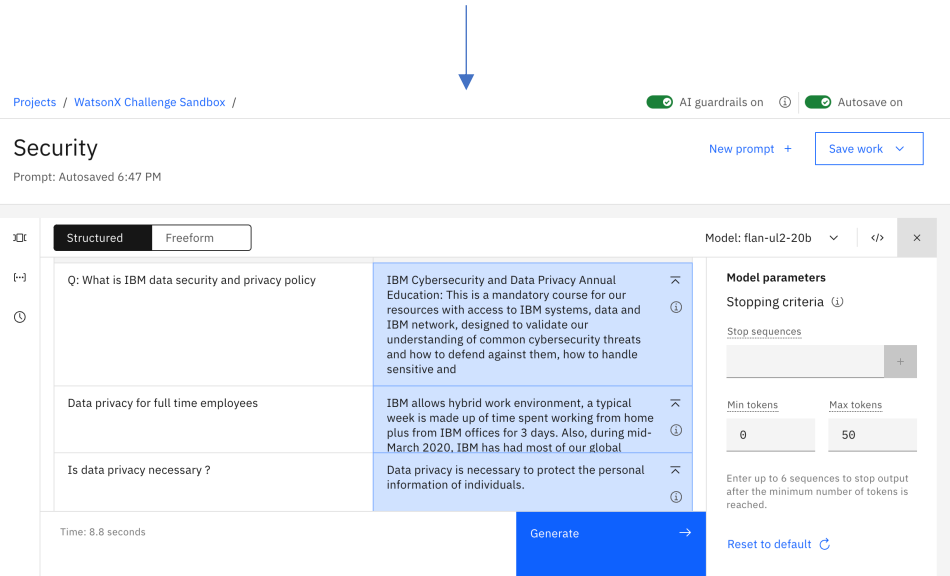
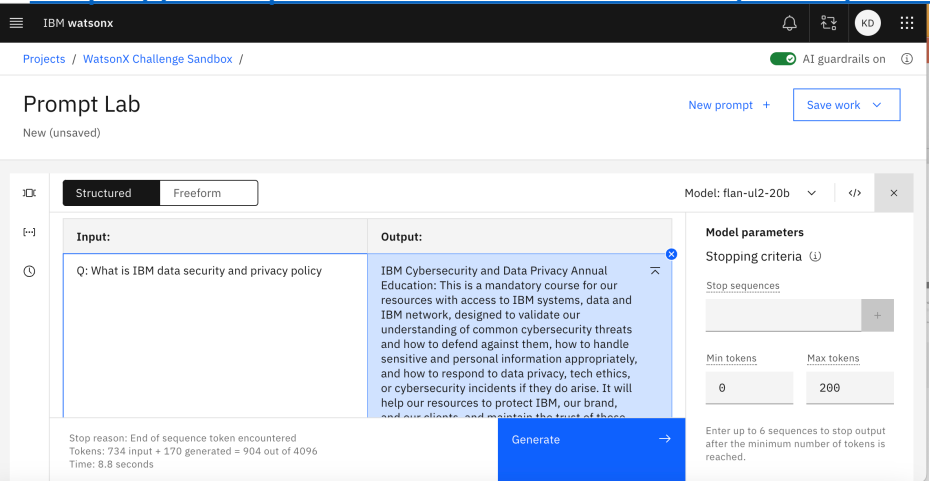
Select a model that best fits your needs. All models support English text. Check the model information for other supported languages.

flan-ul2-20b flan-ul2 is an encoder decoder model based on the T5 architecture and instruction-tuned using the Fine-... Model by Google	mt0-xxl-13b An instruction-tuned iteration on mt5. Model by BigScience	gpt-neox-20b A 20 billion parameter autoregressive language model trained on the Pile. Model by EleutherAI	flan-t5-xxl-11b flan-t5-xxl is an 11 billion parameter model based on the Flan-T5 family. Model by Google
mpt-7b-instruct2 MPT-7B is a decoder-style transformer pretrained from scratch on 1T tokens of English text and cod... Model by IBM			

Prompt Lab Exploration

The below flow of screenshots explain how we trained the model based on IBM Data Security FAQs. Later, tested the model with sample questions. Finally, saved it as a prompt/ jupyter python notebook. Ref:

<https://dataplatform.cloud.ibm.com/docs/content/wsj/analyze-data/fm-prompt-tips.html?context=wx&audience=wdp>



Note: Change max tokens to get more output. 1 Token = 3 words

Feedback: Prompt Lab Exploration

Give option to save the prompt as py file (instead of just jupyter notebook). This saves time to convert ipynb to py file for coding purposes

Projects / WatsonX Challenge Sandbox / AI guardrails on Autosave on

Save your work

Specify how to save your work by selecting an asset type and defining details.

Save the current prompt only, without its history.	Save history and data from the current session.
Notebook	
Save the current prompt as a notebook.	

Description (optional)

What's the purpose of this prompt asset?

☐ View in project after saving ⓘ

Cancel Save →

API Key Generation in IBM Cloud IAM Portal

Read watsonx.ai access instructions at Ref: <https://w3.ibm.com/w3publisher/ai-for-business/track-3> for creating the API key in the correct project account. (watsonx challenge instead of IBM)

cloud.ibm.com/iam/apikeys

Update

IBM Cloud

Search

Catalog

Manage

IBM

2639995 - WatsonX Challenge

IAM

Manage identities

Users

Trusted profiles

Service IDs

API keys

Identity providers

Manage access

Access groups

Authorizations

access that is assigned to the user. The following table displays a list of

Learn more.

Looking for more options to manage API Keys? Try IBM Cloud® Secrets

keys dynamically and storing them securely in your own dedicated inst

View: My IBM Cloud API keys

API keys associated with a user’s identity have the same access that the user is assigned across all accounts. To update the access for an API key, assign or remove access for the user.

Create

Status	Name	Description	Date created
API key for watsonx challenge	API key for watsonx challenge	2023-08-08 18:13 GMT	

1-25 items

IBM Cloud

Search

Catalog

Manage

IBM

Manage access and users

Create access group

Invite users

Users

View all

Limits

Access groups

1 / 500

Policies and rules

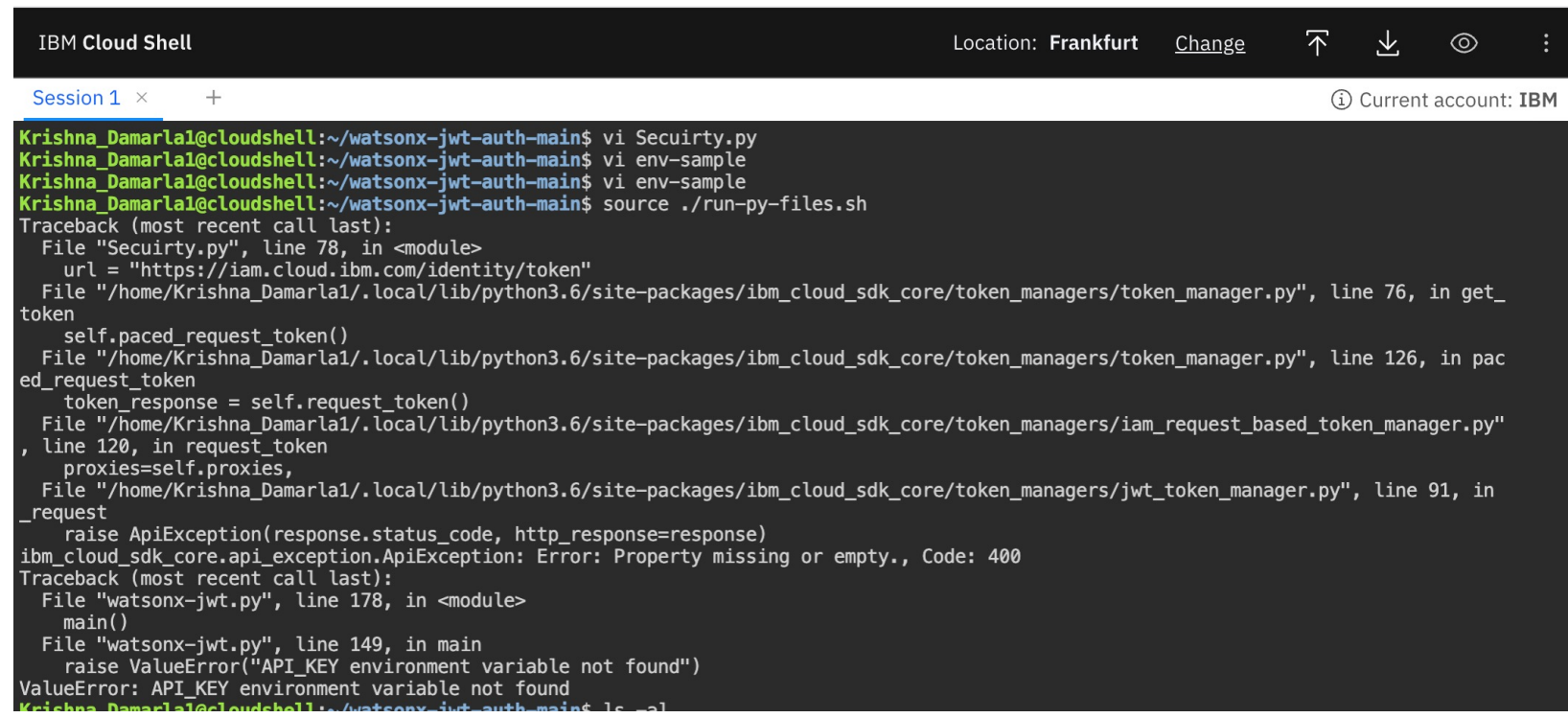
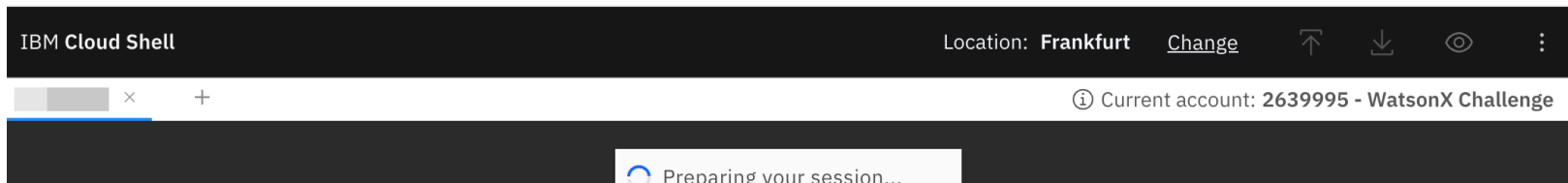
32 / 4020

Tip: To minimize the total number of policies, use



API Key Generation in IBM Cloud IAM Portal

Check if you are creating keys and working in shell env related to the project (watsonx challenge) instead of IBM account. Else, you will encounter an error like shown in the below 2nd screenshot



API Key Generation in IBM Cloud IAM Portal

Feedback: If there are any key expiration policies, those to be noted in API Key details. For coding purposes, better to have flexibility of long expiration key policy

The screenshot displays the IBM Cloud IAM Portal interface. On the left, a dark sidebar contains navigation links: IAM, Manage identities, Users, Trusted profiles, Service IDs, API keys (highlighted), Identity providers, Manage access, Access groups, Authorizations, and Roles. The main content area shows the 'API key details' for a specific key. The details are as follows:

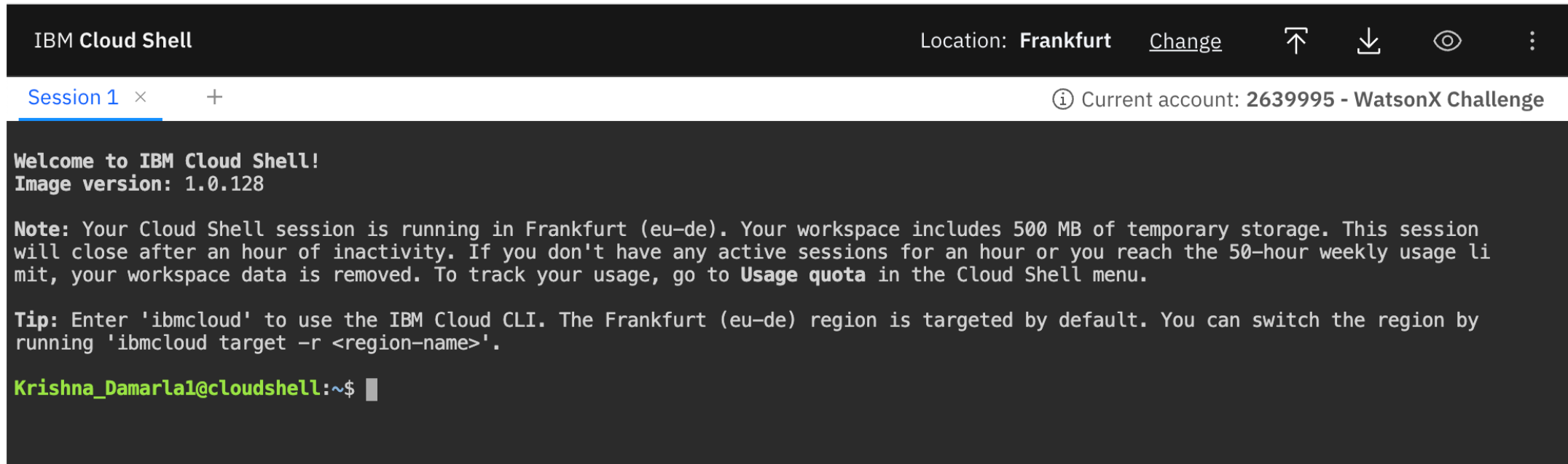
API key details	
Name	Watsonx api key
Description	Watsonx api
ID	ApiKey-09439e99-f621-461f-ba71-e949793cc97b
Status	Unlocked
Email	Krishna.Damarla1@ibm.com
Created by	Krishna Damarla
Date created	2023-08-08 18:34 GMT
Last authentication	2023-08-08 18:36:57:416 GMT
Auth count	4

A blue 'Create +' button is visible in the bottom right corner of the main content area. The IBM logo is located in the bottom right corner of the overall image.

Cloud shell

Feedback:

- All the project files related to the watsonx challenge are lost once the session is closed or when the day changes. This means, every time, Project need to be reuploaded and project-related modules or software need to be reinstalled.
- Uploading a file to shell should give us option to give the folder name to upload to (just like how we get the option to enter full folder path to download)
- Give the option to edit / debug the project files in an editor running in cloud instead of editing from cloud shell
- Load performance - Loading the shell env for the first time took more than 2 minutes



```
IBM Cloud Shell
Location: Frankfurt Change
Session 1 x +
(i) Current account: 2639995 - WatsonX Challenge

Welcome to IBM Cloud Shell!
Image version: 1.0.128

Note: Your Cloud Shell session is running in Frankfurt (eu-de). Your workspace includes 500 MB of temporary storage. This session will close after an hour of inactivity. If you don't have any active sessions for an hour or you reach the 50-hour weekly usage limit, your workspace data is removed. To track your usage, go to Usage quota in the Cloud Shell menu.

Tip: Enter 'ibmcloud' to use the IBM Cloud CLI. The Frankfurt (eu-de) region is targeted by default. You can switch the region by running 'ibmcloud target -r <region-name>'.

Krishna_Damarla1@cloudshell:~$
```

Work with data & models in Python Notebooks Exploration

Tested that we are using the correct API key by following the steps mentioned within test_access.ipynb

IBM watsonx

Projects / WatsonX Challenge Sandbox / Test

File Edit View Insert Cell Kernel Help

In [12]: # if this cell fails, it means you did not enter the API key correctly, or it's a bad API key
getBearer(credentials["apikey"])

About to create bearer
Bearer retrieved

Out[12]: 'eyJraWQioIyMDIzMDcxMDA4MzMlLCJhbGciOiJSUzI1NiJ9.eyJpYXlwfawQioiJJQklpZC01NTAwMDFQV0tWIiwiaWQioiJJQklpZC01NTAwMDFQV0tWIiwicmVhbGlpZCI6Ik1CTWlkIiwianRpIjoimGMwZmQ0YTctN2QxNC00NjBLLTg0MTctMDk4NWY4Mzc0NDQ0IiwiaWRlb3R5bm9udGkiOiJ1MDAwMVBSXSYiLCJnaXZlbnl9uYWllIjois3Jpc2huYSIsImZhbnVseV9uYWllIjoirGFtYXJsYSIsIm5hbWUiOiJLcmclzaG5ierhbWfYbGEilCJlbWFPbcI6IktyaXNobmEuRGFTYXJsYTFaAWJtLmNvbSIsInN1YiI6IktyaXNobmEuRGFTYXJsYTFaAWJtLmNvbSIsImFldGhuIjp7InN1YiI6IktyaXNobmEuRGFTYXJsYTFaAWJtLmNvbSIsImhhbV9pZCI6Ik1CTWlkLTU1MDAwMVBSXSYiLCJuYWllIjois3Jpc2huYSBEYWLhcmxiIiwiz212ZW5fbmFtZSI6IktyaXNobmEiLCJmYWlpbnBlbmFtZSI6IkRhbnVfYbGEilCJlbWFPbcI6IktyaXNobmEuRGFTYXJsYTFaAWJtLmNvbSJS9LJCjhY2NvdW50Ijp7InZhbkGltIjpoCnVlLCJic3MiOiJKYTtyOGJHmjU2M2U0ODFhODMzZjI4ODZkMjAwODJmNCIsImltc19lc2VyX2lkIjoimTEXMDG5MTkiLCJmc96ZW4iOnRydWUsImltcyI6IjI2Mzk5OTUifSwiaWF0IjoxNjkxNTE5Nzc3LCJleHAiOjE2OTE1MjA5NzIsImltcyI6Imh0dHBzOi8vaWftLmNsb3VkbWlibS5jb20vbn2lkYy90b2tlbiIsImdyYW50X3R5cGUoIjoicm46aWJtOnBhcmtfczpvYXV0aDpncmFudC10eXB1OmFwaWtleSIsInNjb3BlIjoiaWJtIG9wZW5pZCIsImNsawVuDF9pZCI6ImRlzmFlbhQilCJhY3IiOjEsImFtcii6WyJwd2QiXX0.Y20DZERcpQQWMDX49BdzxGf-mhXlwGU5cql2XoeIsbyIELZGF9ambOb2tTHQXD2tpOlEaIMYNolXI2-j42v-c9mz2tvf-kDNza-cPaq8oWxrntjxVrN_Lwb2WB1j2GvSBemGEQMML16PfzhEFKilgtjWNKGa3a41WDGkg0gcQuMy-d04j6a9K4-BGbr7TkP6eTNbxzTgTwlkKeJQt3yWzQdkYF9DtK-4VLgvMRxVvybDLTfZOHCBGepNfLjDY4cGrYq6HxMWsa36Gpxd-lEhaQSz9s0wyumAUZLcoWMQHnJQqvBPDecXlxOxQFlhloplEwQuBeUKLAGW2bJvEP8pCQ'

In [13]: #set project_id as described above. project id look like this: "21e2faf2-124d-4b06-9bf2-eec86e501117" (but obvious)
project_id = "34868e5b-6aed-4730-a8a9-a367fb3c82d1"

Feedback: Better to have undo & redo buttons for code within jupyter notebooks

code run steps

1. Download the latest project folder (zip file) from gitto local computer
2. Edit the env-sample file
3. Add the apikey.json file (downloaded directly from IBM Cloud IAM Access Keys portal) to the project folder
4. Zip the project folder
5. Upload to IBM Watsonx challenge cloud shell
6. Unzip the folder in cloud shell
7. Run - source ./setup_shell.sh. - Installs necessary modules or packages

```
-rwxr-xr-x 1 Krishna_Damarla1 user 5717 Aug  4 21:26 watsonx-jwt.py
Krishna_Damarla1@cloudshell:~/watsonx-jwt-auth-main$ source ./setup_shell.sh
Defaulting to user installation because normal site-packages is not writeable
Collecting jupyter
  Downloading jupyter-1.0.0-py2.py3-none-any.whl (2.7 kB)
Collecting ibm-cloud-sdk-core
  Downloading ibm-cloud-sdk-core-3.16.7.tar.gz (52 kB)
    |████████████████████| 52 kB 1.5 MB/s
```

8. Run - source ./convert-to-python.sh. - Converts jupyter notebooks (prompts saved in slide 8) to .py file.
9. Run - source ./run-py-files.sh – Outputs the results of all converted ipynb books to a txt file
10. Run – python3 docx2.py – Writes the outputs from txt file to a word document

THANK YOU