

AI-Powered Career Coach Assistant

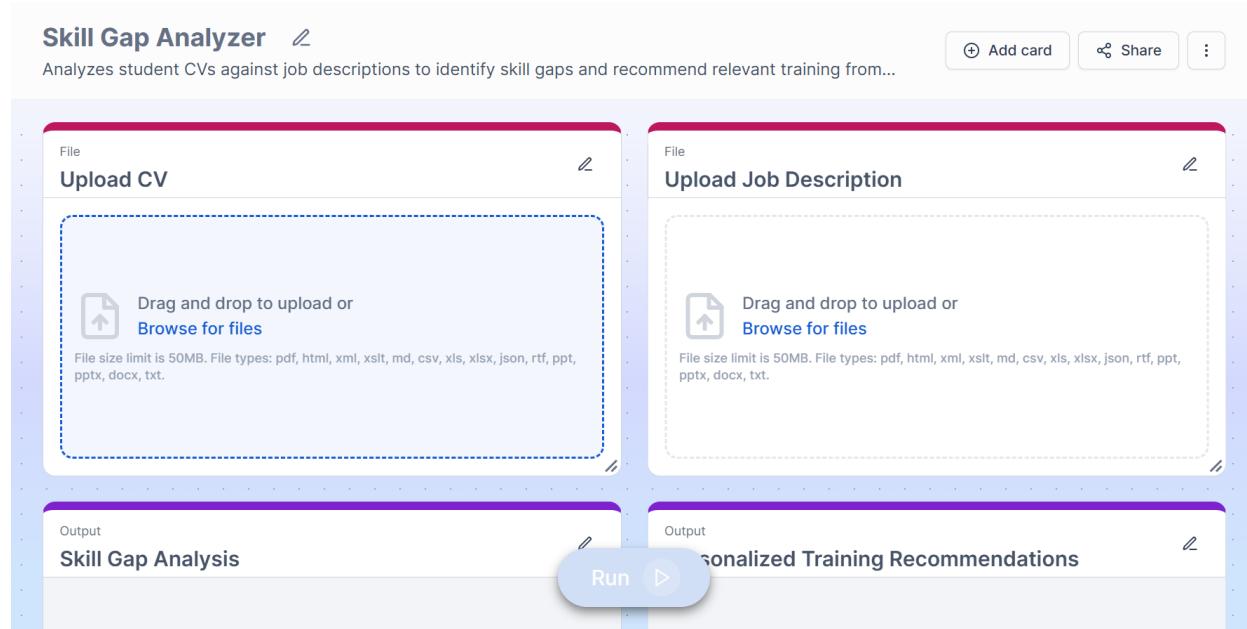
This document summarizes my successful completion of my AWS sponsored Business Intelligence Engineer second project, where I designed and implemented a generative-AI Career Coach Assistant using **Amazon Q Business**. The project required integrating multiple data sources, securing application access, and building intelligent interaction flows to support skill development and career readiness.

1. Create and Customize the Amazon Q Application

I built the core of the Career Coach Assistant by configuring the required input and output components:

Input Cards

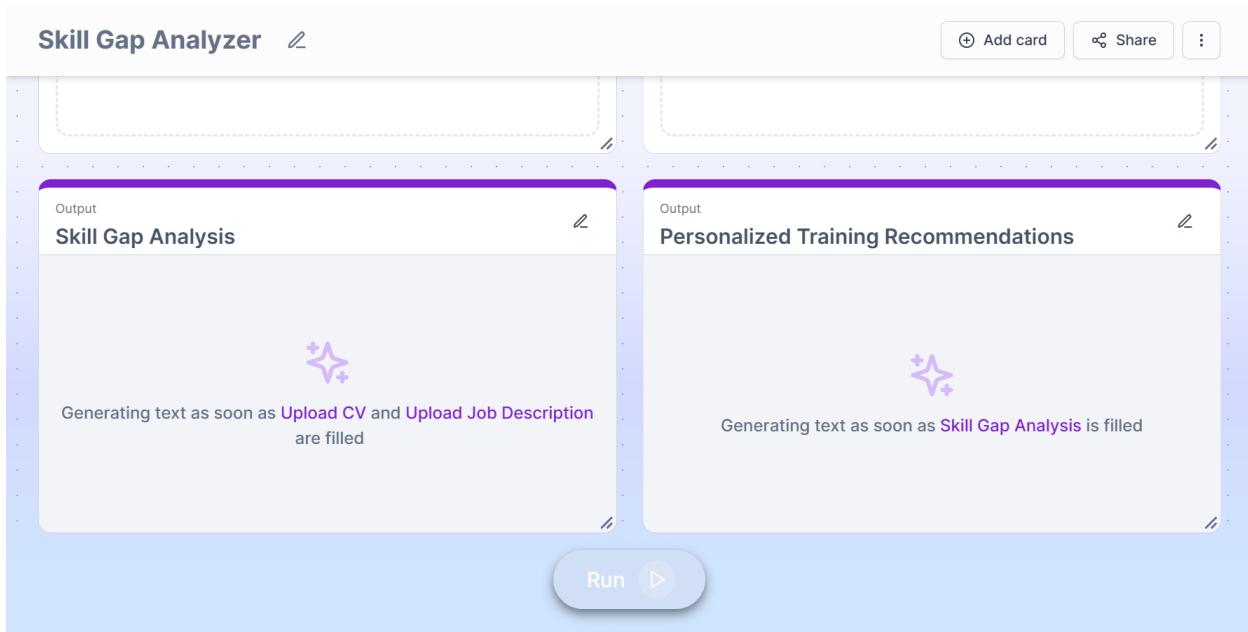
- **CV Upload Card**
- **Job Profile Upload Card**



These allow the user to upload documents for analysis.

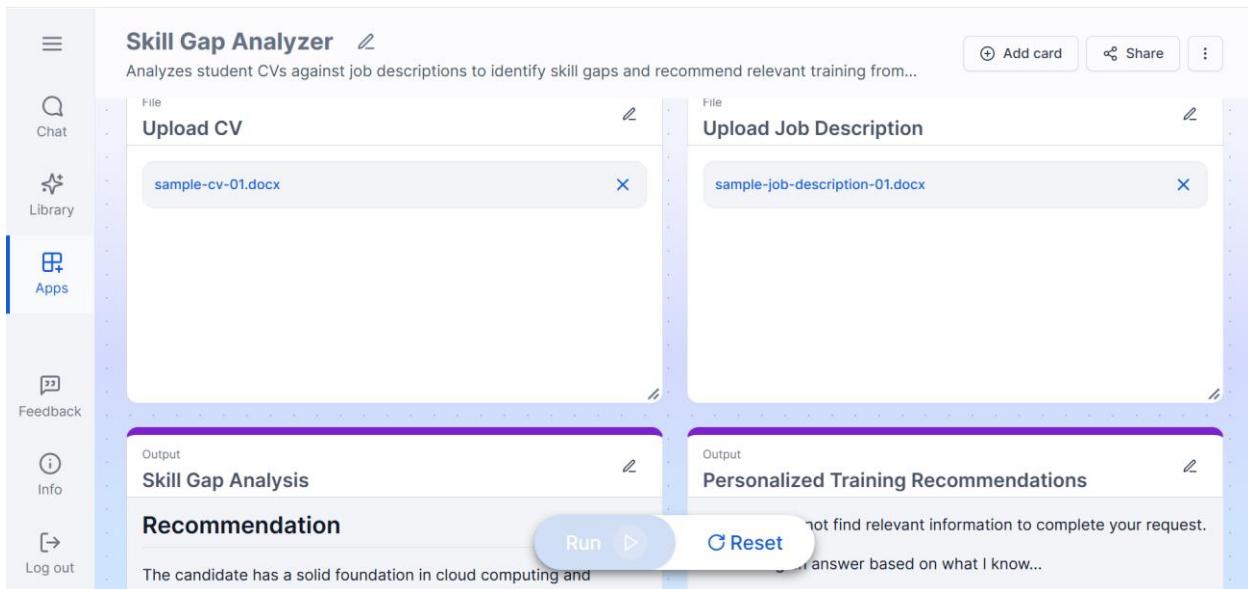
Output Cards

- **Skill Gap Analysis**
- **Training Recommendations**



I verified functionality by uploading sample CVs and job profiles and ensuring the assistant generated accurate results.

A screenshot of the working interface was provided to meet the rubric requirement.



The screenshot shows a user interface for a 'Skill Gap Analyzer'. On the left, a sidebar menu includes options like Chat, Library, Apps (which is selected), Feedback, Info, and Log out. The main area has two cards:

- Skill Gap Analysis**:
 - Output**: Skill Gap Analysis
 - Recommendation**:

The candidate has a solid foundation in cloud computing and software development but lacks the specialized AI/ML skills required for this role. Significant upskilling would be needed in Generative AI, LLMs, and related technologies to be competitive for this position.
- Personalized Training Recommendations**:
 - Output**: Personalized Training Recommendations
 - Sorry, I could not find relevant information to complete your request. Generating an answer based on what I know...

Here are the recommended Career4All training courses prioritized to address the identified skill gaps:

Priority 1: Core AI/ML Foundation

 - 1. "Foundations of Generative AI and LLMs" (Course AI101)
 - Duration: 12 weeks

At the bottom are 'Run' and 'Reset' buttons.

2. Advanced Interaction Components

To enhance interactivity and personalization, I added:

Suggested Schedule

A new **Output Card** that generates a personalized training schedule based on identified skill gaps.

Output

Personalized Suggested Schedule



Generating text as soon as **Skill Gap Analysis** is filled

Coach Recommendation Input Card

An **Input Card** enabling users to request tailored guidance from assigned career coaches.

☰

Skill Gap Analyzer

Analyzes student CVs against job descriptions to identify skill gaps and recommend relevant training from...

Chat

Library

Apps

Feedback

Info

Log out

Text Input

Recommendations by Coach

Recommendations from the coach

File

Upload Job Description

Drag and drop to upload or
Browse for files

File size limit is 50MB. File types: pdf, html, xml, xslt, md, csv, xls, xlsx, json, rtf, ppt, ptx, docx, txt.

File

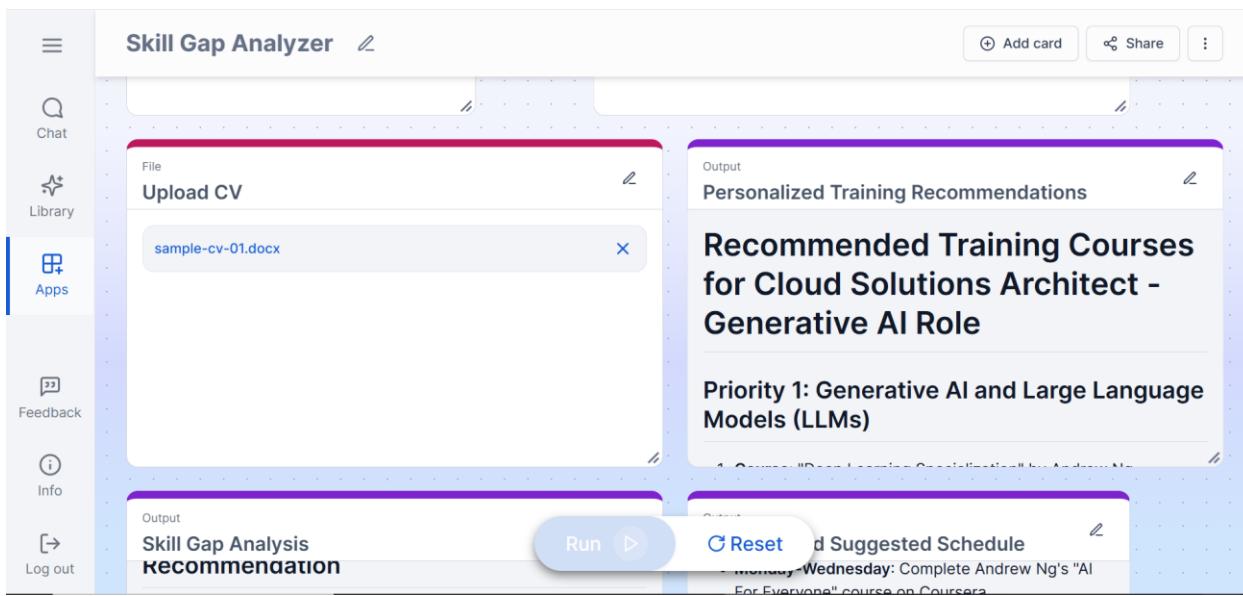
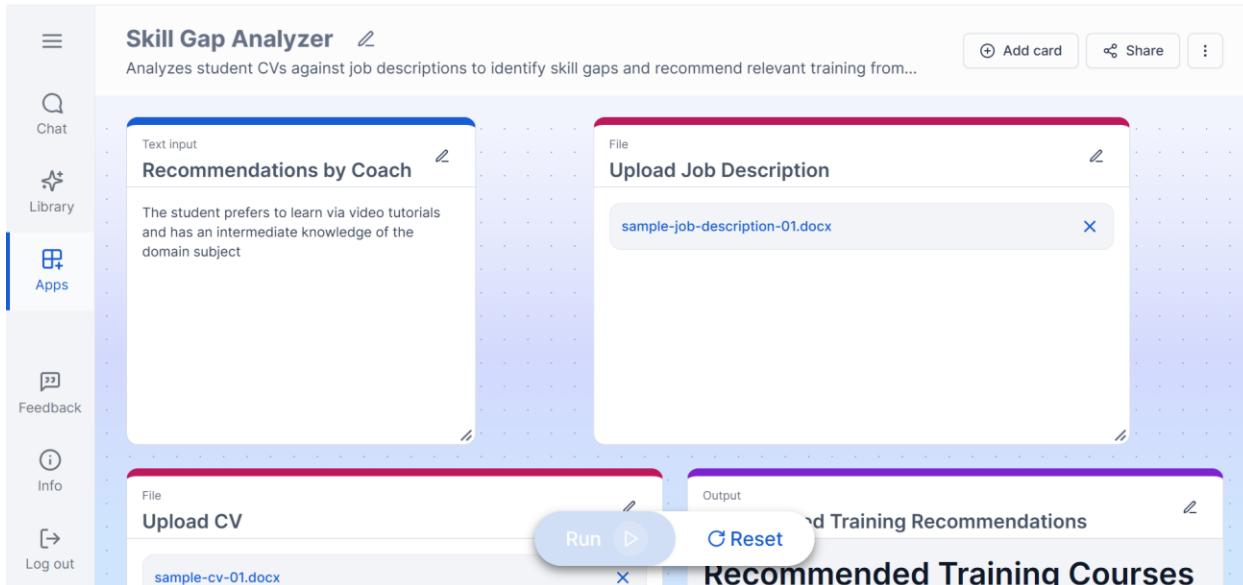
Upload CV

Run

Reset

Find Training Recommendations

Both additions were tested, validated, and documented with updated interface screenshots.



3. Upload Static PDF & Integrate Amazon S3

I connected two types of data sources to enrich the application:

Static PDF Data Source

- Uploaded a **PDF course catalog**

- Synced it successfully as a data source

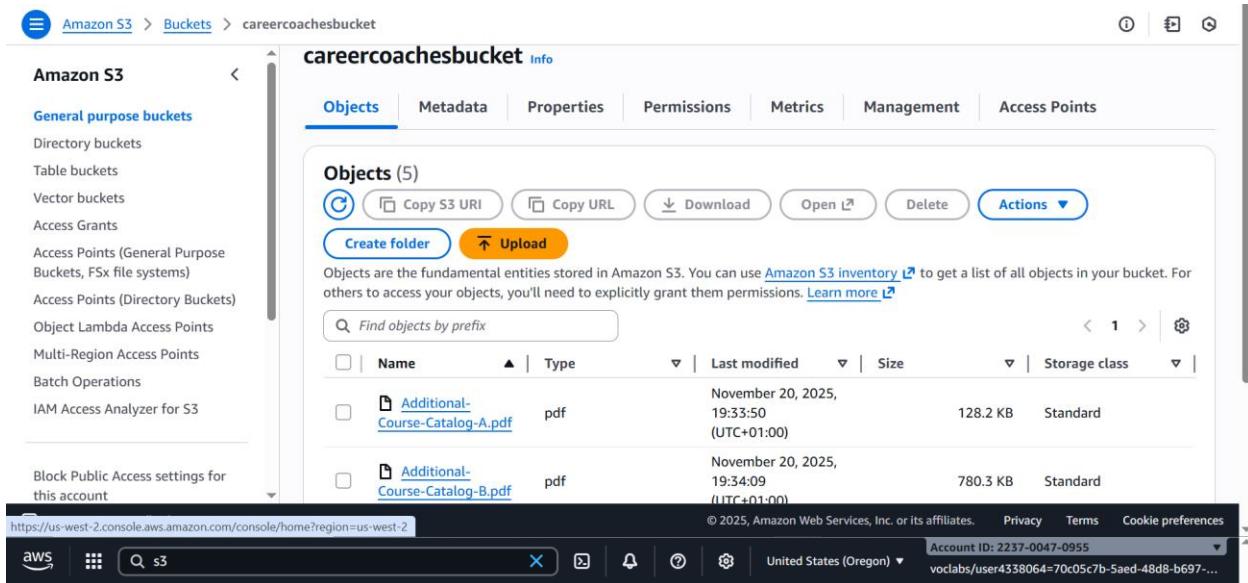
The screenshot shows the 'Uploaded files' section of the Amazon Q Business interface. The left sidebar has a tree view with 'Enhancements' expanded, showing 'Data sources' selected. The main area title is 'Uploaded files (Info)'. A table lists two files: 'Additional-Course-Catal...' uploaded on Nov 20, 2025, at 4:43 PM, both of which are indexed and ready to use as sources.

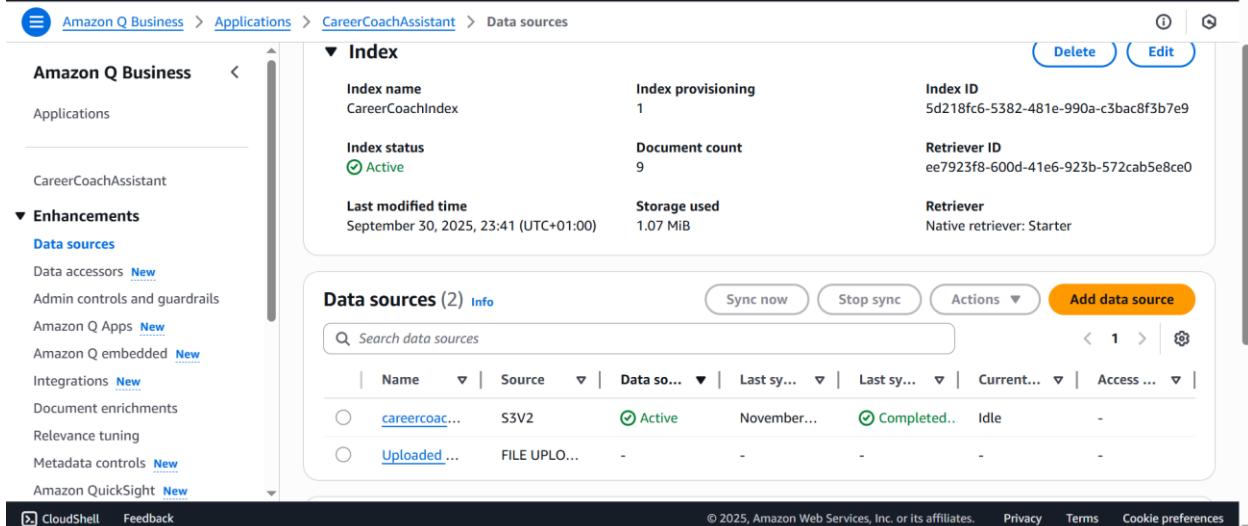
Document name	Upload time	Upload status	Status details
Additional-Course-Catal...	Nov 20, 2025, 4:43 PM G...	Indexed	Ready to use as a source
Additional-Course-Catal...	Nov 20, 2025, 4:43 PM G...	Indexed	Ready to use as a source

Amazon S3 Training Catalog

- Created an S3 bucket and uploaded at least one training catalog file
- Added the bucket to Amazon Q as a data source
- Verified a successful sync

These data sources allow the application to pull the most up-to-date training information automatically.

The screenshot shows the Amazon S3 console for the 'careercoachesbucket'. The left sidebar lists 'General purpose buckets' and 'Block Public Access settings for this account'. The main area displays 'Objects (5)' with two PDF files: 'Additional-Course-Catalog-A.pdf' and 'Additional-Course-Catalog-B.pdf'. The catalog A file was modified on November 20, 2025, at 19:33:50 UTC+01:00, while catalog B was modified on November 20, 2025, at 19:34:09 UTC+01:00. Both files are 128.2 KB and Standard storage class.

The screenshot shows the Amazon Q Business console under 'CareerCoachAssistant > Data sources'. The left sidebar includes sections for 'Applications', 'Enhancements' (with 'Data sources' selected), and various integration options like 'Admin controls and guardrails', 'Amazon Q Apps', 'Amazon Q embedded', and 'Integrations'. The main area shows the 'Index' configuration for 'CareerCoachIndex' with an Index ID of '5d218fc6-5382-481e-990a-c3bac8f3b7e9'. It also lists 'Data sources (2)' with entries for 'careercoac...' (S3V2 source, Active, Completed, Idle) and 'Uploaded ...' (FILE UPLO... source, -). The status bar indicates the URL is https://us-west-2.console.aws.amazon.com/console/home?region=us-west-2 and the Account ID is 2237-0047-0955.

The image displays two side-by-side screenshots of the Amazon Q Business console, both showing the 'Data sources' page for the 'careercoachesbucket' S3 data source.

Screenshot 1 (Top): Data source details

- Name:** careercoachesbucket
- Status:** Active (green checkmark)
- Description:** -
- Type:** S3V2
- Data source ID:** c51b43ad-3d6e-478d-befe-af7b5c5bd8b3
- IAM role ARN:** arn:aws:iam::223700470955:role/QBusinessDataRole
- Last sync status:** Successful - service is operating normally
- Last sync time:** Nov 20, 2025, 7:46 PM GMT+1
- Current sync state:** Idle

Screenshot 2 (Bottom): Sync history

- Sync history (1):**
 - Description:** -
 - Type:** S3V2
 - Last sync time:** Nov 20, 2025, 7:46 PM GMT+1
- Sync history (1):**

Status / Summary	Start time	End time	Total items scanned	Actions
Completed	Nov 20, 2025, 7:46 PM GMT+1	Nov 20, 2025, 7:50 PM GMT+1	7	View report

4. Configure Automatic Daily Sync

To ensure continuous freshness of the training data:

Daily Scheduled Sync

I configured Amazon Q to perform a **daily automatic sync** for the S3 data source. A screenshot confirming the next scheduled update was included in the submission.

The image contains two screenshots of the Amazon Q Business console, illustrating the configuration and monitoring of a data source.

Screenshot 1: Sync run schedule configuration

This screenshot shows the "Sync run schedule" configuration page for a data source named "careercoachesbucket". The "Frequency" is set to "Daily" and the "Start time" is set to 18:41 UTC. The page includes "Advanced Settings - optional" and "Info" links, and "Back" and "Update" buttons.

Screenshot 2: Data source details and sync history

This screenshot shows the "Data sources" details page for the same data source. It displays the "Description" (empty), "Type" (S3V2), and "Last sync time" (Nov 20, 2025, 7:46 PM GMT+1). The "Data source ID" is "c51b43ad-3d6e-478d-befe-af7b5c5bd8b3" and the "IAM role ARN" is "arn:aws:iam::223700470955:role/QBusinessDataRole". The "Current sync state" is "Idle". Below this, the "Sync history" tab is selected, showing one completed sync job from Nov 20, 2025, at 7:46 PM GMT+1, which scanned 7 items. A "View report" button is also present.

5. Secure the Application

Security and responsible access control were essential parts of the project:

Use of Required Group & Users

I used the provided **CareerCoaches** group with the required users:

- *career.coach.one*
- *career.coach.two*

Groups (1)

Name	Current subscription	Subscription status
CareerCoaches	Q Business Pro	Active

Users (2)

Name	User name	Current subscription	Subscription status
Career Coach One	career.coach.one	Q Business Pro	Active
Career Coach Two	career.coach.two	Q Business Pro	Active

ACL Access Control

Uploaded and applied an **ACL file** to the appropriate data source to enforce access permissions.

```
[{
    "keyPrefix": "s3://careercoachesbucket/Security/",
    "aclEntries": [
        {
            "Name": "CareerCoaches",
            "Type": "GROUP",
            "Access": "ALLOW"
        }
    ]
},
{
    "keyPrefix": "s3://careercoachesbucket/Medicine/",
    "aclEntries": [
        {
            "Name": "career.coach.one",
            "Type": "USER",
            "Access": "DENY"
        },
        {
            "Name": "career.coache.two",
            "Type": "USER",
            "Access": "ALLOW"
        }
    ]
}]
```

The screenshot shows the AWS Amazon Q Business console. The navigation path is: Amazon Q Business > Applications > CareerCoachAssistant > Data sources > careercoachesbucket > Update S3. The main content area is titled "Maximum single file size" with a value of 50 MB. It includes sections for "Access control list (ACL) configuration file location - optional", "Metadata files folder location - optional", "Filter patterns - optional", and "Multi-media content configuration - optional". The bottom of the page includes CloudShell, Feedback, and standard footer links.

✓ Access Verification

Documented results showing:

- **Access Denied** for unauthorized coach

The screenshot shows the Amazon Q Business interface for the "Career Coach Assistant". On the left sidebar, there are icons for Chat, Library, Apps, Feedback, Info, and Log out. The main area displays a query: "what is the mission statement for the medical university of the americas". Below the query, it says "No answer is found." and "Generating an answer based on what I know...". At the bottom, there are tabs for "Company knowledge" and "General knowledge", and a search bar with "Ask a followup question" and "Plugins" checkboxes. A note at the bottom states: "Amazon Q Business uses generative AI. You may need to verify responses for accuracy. AWS Responsible AI Policy".

- **Access Granted** for authorized coach

The screenshot shows the Career Coach Assistant interface. On the left is a sidebar with icons for Chat, Library, Apps, Feedback, Info, and Log out. The main area displays a question and answer pair. The question is "what is the mission statement for the medical university of the americas". The answer is: "The Medical University of the Americas' mission statement is to provide students of diverse backgrounds with the opportunity to acquire the medical and clinical expertise needed for a successful career as a practicing clinician, along with the skills and confidence needed to critically evaluate and apply new information. [1] To fulfill this mission, the university's program is structured around certain ideals embodied in six competencies that define the essential qualities of today's". Below the answer are tabs for Company knowledge, General knowledge, and an info icon. A text input field says "Ask a followup question" with a send button. Below it are checkboxes for Plugins and Advanced search. At the bottom, a note says "Amazon Q Business uses generative AI. You may need to verify responses for accuracy. AWS Responsible AI Policy" with a link.

Content Moderation

Configured a **Global Controls** list to block restricted keywords such as “*Gambling*” and “*Casino*”.

A screenshot of the keyword filtering configuration was included.

The screenshot shows the 'Feature settings' section with two checked options: 'Allow end users to upload files in chat content' (enabling users to upload files directly to chat) and 'Allow end users of the web experience to create and use Amazon Q Apps' (enabling users to customize the application). Below this is the 'Blocked words' section, which allows users to define words to be omitted from responses. Two words, 'Gambling' and 'Casino', are listed in the input field.

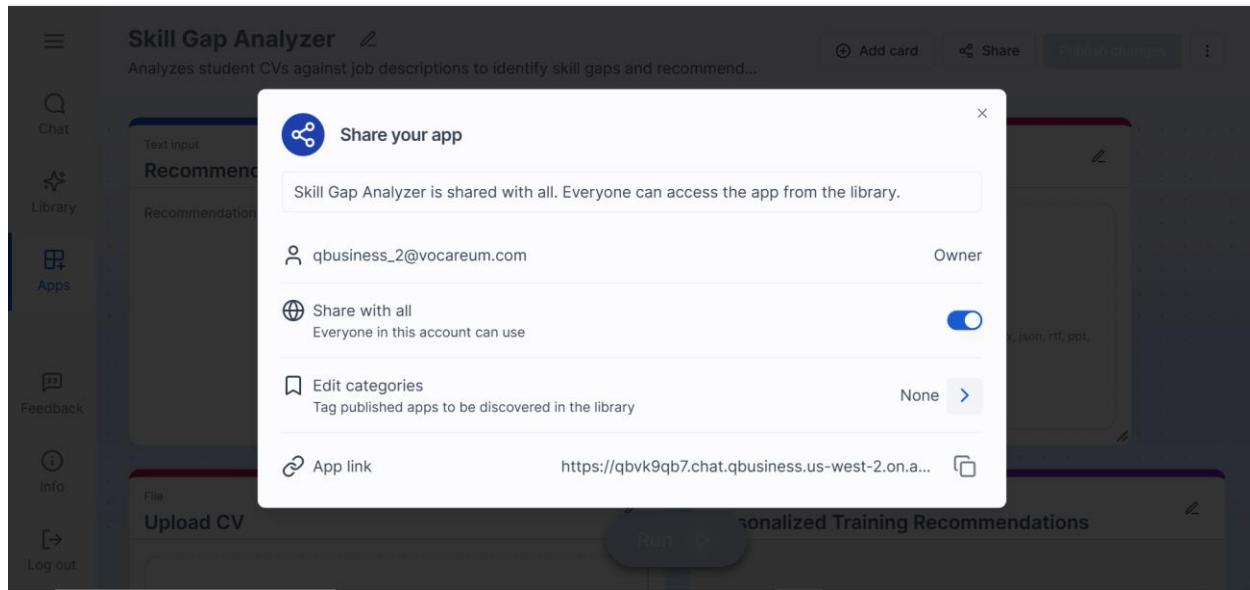
This screenshot shows the 'Feature settings' section with the same two options checked. It also shows the 'Topic specific controls' section, which is currently empty. A sidebar on the left lists various Amazon Q Business features, including 'Enhancements' and 'Admin controls and guardrails'.

6. Publish and Share the Application

I finalized the app by preparing it for end users:

Sharing & Permissions

The application was shared with the required users and groups.



Custom Labels

Labels such as “Career Coaching” and “AI-Powered” were applied to organize and categorize the app.

The screenshot shows the AWS Lambda interface for managing custom labels. At the top, there's a navigation bar with links to 'Amazon Q Business', 'Applications', 'CareerCoachAssistant', 'Amazon Q Apps', and 'Amazon Q Apps Settings'. The account ID is 2237-0047-0955. Below this, a section titled 'Edit custom labels' lists five labels: 'AI powered' (Grey), 'Career Coaching' (Pink), 'Finance' (Fuchsia), 'Operations' (Green), and 'HR' (Black). Each label has a 'Remove' button next to it. Below this section, a card for the 'Skill Gap Analyzer' app is displayed. The card includes the following details:

- Labels: AI powered, Career Coaching (highlighted in pink), HR
- Verification status: A blue checkmark icon is present.
- App name: Skill Gap Analyzer
- Published by: 1 user
- Published date: November 20, 2025
- Description: Analyzes student CVs against job descriptions to identify skill gaps and recommend relevant training from Career4All's catalog
- Actions: A heart icon and an 'Open' button.

Verified & Endorsed

The application was endorsed and marked as a **Verified Q App**, meeting the final requirement. Screenshots confirming its published state, labels, and verification status were included.

The screenshot shows the Amazon Q Business application library. On the left, a sidebar lists various business components like Applications, CareerCoachAssistant, Enhancements (Data sources, Admin controls and guardrails, Amazon Q Apps, Amazon Q embedded, Integrations, Amazon QuickSight, Response customization), and more. The main area displays a table of published Amazon Q Apps in the library. One app, 'Skill Gap Analyzer', is highlighted. It has a blue border around its row. The table columns include Name, Description, Creation time, Creator, and State. The 'Skill Gap Analyzer' row shows 'Skill Gap Analyzer' as the name, 'Analyzes student CVs against job descr...' as the description, 'Nov 19, 2025, 11:13 PM GMT+1' as the creation time, 'Career Coach Two' as the creator, and a green checkmark icon indicating it is 'Verified'. Below the table, there's a summary card for the 'Skill Gap Analyzer' app. The card includes the text 'AI powered', 'Career Coaching', 'HR', a blue verified badge with a checkmark, and the app's name 'Skill Gap Analyzer'. It also states '1 user | Published on November 20, 2025' and a brief description: 'Analyzes student CVs against job descriptions to identify skill gaps and recommend relevant training from Career4All's catalog'. At the bottom of the card are a heart icon and a 'Open' button.

Name	Description	Creation time	Creator	State
Skill Gap Analyzer	Analyzes student CVs against job descr...	Nov 19, 2025, 11:13 PM GMT+1	Career Coach Two	Verified
Customer Comp				

Final Summary

My completed project demonstrates proficiency in:

- Building AI-powered workflows using **Amazon Q Business**
- Integrating PDF and **Amazon S3** data sources
- Implementing secure access controls
- Designing interactive components and intelligent recommendations
- Managing syncing, moderation, and publishing of cloud-based applications

This project strengthened my skills in **data integration, cloud application development, and AI-driven business intelligence workflows**, aligning with the goals of the AWS–Udacity Business Intelligence Engineer scholarship.