

AI-powered Career Coach Assistant

Shahad Almowaled

Submission Date: 19/11/2025

Project Overview

This project demonstrates the development of a generative AI-powered Q App using **Amazon Q Business**. The application analyzes uploaded CVs and job profiles to identify skill gaps and recommend personalized training paths. It integrates advanced interaction components, secure access controls, and dynamic data sources including Amazon S3 and static PDFs.

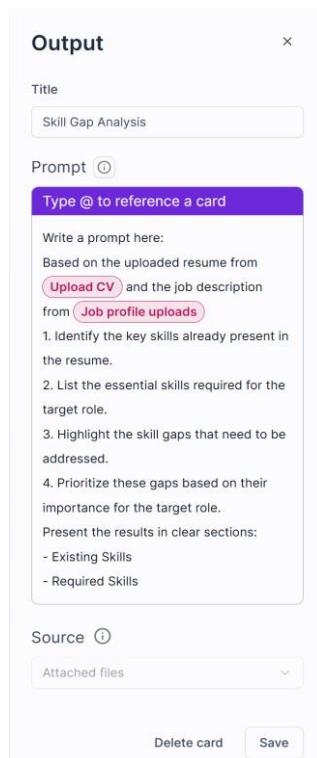
Core Functionality

This part summarizes the main features, including skill gap detection and personalized training suggestions to support career growth.

- **Skill Gap Analysis:** Input cards for CV and job profile uploads; output card displays skill gap results.

The image shows three separate input cards side-by-side, each with a close button (X) in the top right corner.

- File upload (Left):** Title: "Upload CV". Default file - optional: "sample-cv-01.docx". A note says "Uploaded files will be accessible to users of published Q Apps". A checked checkbox says "Allow override of default file". Buttons: "Delete card" and "Save".
- File upload (Middle):** Title: "Job profile uploads". Default file - optional: "Sample-job-...". A note says "Uploaded files will be accessible to users of published Q Apps". A checked checkbox says "Allow override of default file". Buttons: "Delete card" and "Save".
- Text input (Right):** Title: "Career Coach Input". Placeholder - optional: "placeholder". Default value - optional: "Tech field — specifically Data Science. The learner has strong Python skills but limited experience with machine learning". Buttons: "Delete card" and "Save".



- **Training Recommendations:** Output card suggests relevant training based on identified gaps.

CareerCoachAssistant ⓘ

AI-powered assistant to automate resume review, skill gap analysis, and personalized training recommendations for learners at Career4All.

Add card Share ⋮

Text Input
Coach Recommendation

Prioritize developing key skills aligned with your major and career goals. Actively participate in real-world projects and volunteer opportunities to gain practical experience. Enhance your learning with short courses or certifications. Aim to complete this plan within 3 months.

File
Job profile uploads

sample-job-description-01.docx

File
Upload CV

sample-cv-01.docx

Output
Skill Gap Analysis

Choose "Run" to run the app

Output
Schedule

Generating text as soon as **Training Recommendations** is filled

Output
Training Recommendations

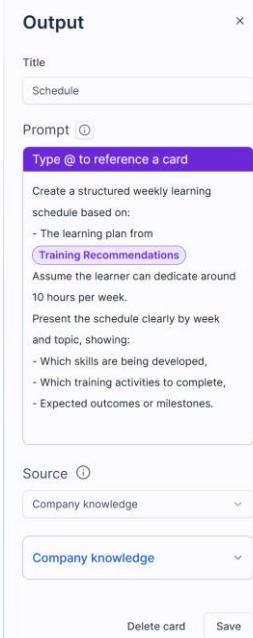
Generating text as soon as **Skill Gap Analysis** is filled

Run ⏪

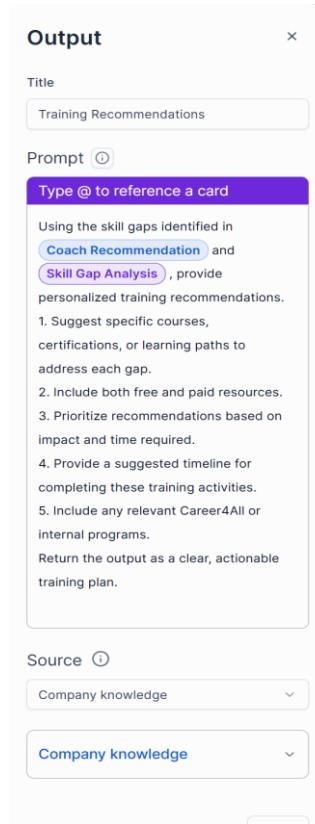
Advanced Interaction Components

This part describes interactive elements such as personalized schedules and coach recommendations that enhance the user experience.

- **Suggested Schedule Output Card:** Displays a personalized training timeline.



- **Coach Recommendation Input Card:** Allows users to request tailored advice from specific coaches.



- Functionality Verified:** Screenshots of both components working correctly.

CareerCoachAssistant

AI-powered assistant to automate resume review, skill gap analysis, and personalized training recommendations for learners at Career4All.

Coach Recommendation

Actively developing key skills aligned with your major and career goals. Actively participate in real-world projects and volunteer opportunities to gain practical experience. Enhance your learning with short courses or certifications. Aim to complete this plan within 3 months.

Job profile uploads

sample-job-description-01.docx

Upload CV

sample-cv-01.docx

Skill Gap Analysis

Skills Analysis: John Doe's Resume vs. Cloud Solutions Architect - Generative AI Role

Existing Skills

Based on John Doe's resume, the following key skills are present:

- Cloud Computing (AWS Certified)
- AWS Certified Cloud Practitioner certification
- Software Development
- Database Management
- System Design
- Problem-Solving & Debugging
- Web Development
- Team Collaboration

Schedule

Weekly Learning Schedule for AI Skills Development

Month 1: Foundation Building

Week 1

Skills Development: AI Fundamentals, Problem-Solving Techniques

- Monday-Tuesday (3 hours):** Introduction to AI problems and characteristics [\[1\]](#)
- Wednesday-Thursday (4 hours):** Study production systems and control strategies [\[1\]](#)
- Friday-Sunday (3 hours):** Explore forward & backward chaining reasoning [\[1\]](#) **Milestone:** Understand basic AI concepts and problem-solving approaches [\[1\]](#)

Run **Reset**

Training Recommendations

3-Month Training Plan for AI and Cloud Skills Development

Month 1: Foundation Building

Week 1-2: Artificial Intelligence Fundamentals

- Take "Introduction to Artificial Intelligence" course covering AI problems, characteristics, and problem-solving techniques [\[1\]](#)
- Learn about search strategies including breadth-first, depth-first, and intelligent searching methods like Best First Search and A* algorithm [\[1\]](#)
- Study knowledge representation fundamentals including First Order Predicate Calculus, Resolution, and Logic Programming [\[1\]](#)

Week 3-4: Programming for AI

Data Source Integration

This explains how different files, including PDFs and S3 data, are connected to the system to keep information updated.

- **Static PDF Upload:** Course catalog uploaded and synced.
- **Amazon S3 Integration:** Training catalog file uploaded and synced.
- **Screenshots:** Confirm successful sync for both sources.

Data sources (1/2) [Info](#)

Name	Source	Data source state	Last sync time	Last sync status	Current sync state	Access Control List
CareerCoach_DataSou...	S3V2	Active	November 03, 2025, 0...	Completed	Idle	-
Uploaded files	FILE UPLOADER	-	-	-	-	-

Uploaded files [Info](#)

Uploaded files (2)

Document name	Upload time	Upload status	Status details
Additional-Course-Catalog-B.pdf	Nov 03, 2025, 9:13 AM GMT+3	Indexed	Ready to use as a source
Additional-Course-Catalog-A.pdf	Nov 03, 2025, 9:13 AM GMT+3	Indexed	Ready to use as a source

bucket-career-coaches [Info](#)

Objects [Metadata](#) [Properties](#) [Permissions](#) [Metrics](#) [Management](#) [Access Points](#)

Objects (5) [C](#) [Copy S3 URI](#) [Copy URL](#) [Download](#) [Open](#) [Delete](#) [Actions](#) [Create folder](#) [Upload](#)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Name	Type	Last modified	Size	Storage class
Additional-Course-Catalog-A.pdf	pdf	October 25, 2025, 15:56:37 (UTC+03:00)	128.2 KB	Standard
Additional-Course-Catalog-B.pdf	pdf	October 25, 2025, 15:56:39 (UTC+03:00)	780.3 KB	Standard
course_access_acl.json	json	November 19, 2025, 11:29:44 (UTC+03:00)	648.0 B	Standard
data/	Folder	-	-	-
theme/	Folder	-	-	-

CareerCoach_DataSource [Info](#)

[Sync now](#) [Stop sync](#) [Actions ▾](#)

Data source details		Last sync status	
Name CareerCoach_DataSource	Status Active	Successful - service is operating normally	
Description -	Type S3V2	Last sync time Nov 03, 2025, 5:56 AM GMT+3	Current sync state Idle
Data source ID 6e6355d8-9990-4d59-89e8-35d87bb3d093	IAM role ARN arn:aws:iam::061572917046:role/QBusinessDataRole		

Sync history Troubleshooting tools - new [Settings](#) Tags

IAM role
IAM role ARN
arn:aws:iam::061572917046:role/QBusinessDataRole [Edit](#)

Sync scope

Data source bucket s3://bucket-career-coaches	Account ID 061572917046
Access control list configuration s3://bucket-career-coaches/course_access_acl.json	Metadata files folder location -
Maximum single file size 50 MB	Document deletion safeguard Off
Multi-media content configuration Text based content	
► Include/Exclude file patterns Include and exclude documents from indexing.	

Sync schedule

Sync run schedule (UTC)
At 02:56 AM

CareerCoach_DataSource [Info](#)

[Sync now](#) [Stop sync](#) [Actions ▾](#)

Data source details		Last sync status	
Name CareerCoach_DataSource	Status Active	Successful - service is operating normally	
Description -	Type S3V2	Last sync time Nov 02, 2025, 5:56 AM GMT+3	Current sync state Idle
Data source ID 6e6355d8-9990-4d59-89e8-35d87bb3d093	IAM role ARN arn:aws:iam::061572917046:role/QBusinessDataRole		

Sync history Troubleshooting tools - new [Settings](#) Tags

Sync history (2)

Status / Summary	Start time	End time	Total items scanned	Failed	Logs	Actions
Completed	Nov 02, 2025, 5:56 AM GMT+3	Nov 02, 2025, 5:59 AM GMT+3	7	0	Service is operating normally View report	View report
Completed	Nov 01, 2025, 5:57 AM GMT+3	Nov 01, 2025, 6:00 AM GMT+3	5	0	Service is operating normally View report	View report

[CloudShell](#) [Feedback](#) © 2025, Amazon Web Services, Inc. or its affiliates. [Privacy](#) [Terms](#) [Cookie preferences](#)

Automatic Updates

This part covers how the app automatically synchronizes data on a schedule to ensure accuracy.

- **Scheduled Sync:** Daily sync configured for S3 data source.

The screenshot shows the Amazon Q Business Data sources page. At the top, it displays the account ID: 0615-7291-7046 and the URL: vocabs/user4372529ffa5472e-1278-11ec-ba40-3... The navigation path is: Amazon Q Business > Applications > CareerCoachAssistant > Data sources > CareerCoach_DataSource.

Data source details:

- Name: CareerCoach_DataSource
- Status: Active
- Description: -
- Type: S3V2
- Data source ID: 6e6355d8-9990-4d59-89e8-35d87bb3d093
- IAM role ARN: arn:aws:iam::061572917046:role/QBusinessDataRole
- Last sync status: Successful - service is operating normally
- Last sync time: Nov 02, 2025, 5:56 AM GMT+3
- Current sync state: Idle

Sync history (2):

Status / Summary	Start time	End time	Total items scanned	Failed	Logs	Actions
Completed	Nov 02, 2025, 5:56 AM GMT+3	Nov 02, 2025, 5:59 AM GMT+3	7	0	Service is operating normally	View report
Completed	Nov 01, 2025, 5:57 AM GMT+3	Nov 01, 2025, 6:00 AM GMT+3	5	0	Service is operating normally	View report

At the bottom, there are links for CloudShell and Feedback, and a copyright notice: © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences.

Security and Moderation

This section outlines permission controls and moderation tools that protect data and prevent misuse.

The screenshot shows the Amazon Q Business Data sources page. A green success message at the top states: "You successfully synced the following data source: 'CareerCoach_DataSource', at start time Nov 01, 2025, 5:57 AM GMT+3." Below the message, the sync history table is displayed.

Data sources (1/1) Info:

Name	Source	Status	Last sync ...	Last sync ...	Current s...	Access Co...
CareerCoach...	S3V2	Active	November 0...	Completed	Idle	-

At the bottom, there are links for CloudShell and Feedback, and a copyright notice: © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences.

- **Access Control:** ACL file uploaded for CareerCoaches group (users: career.coach.one, career.coach.two).

Screenshot of the AWS CloudShell interface showing the configuration of an Amazon Q Business Data Source.

The URL in the browser bar is: [Amazon Q Business > Applications > CareerCoachAssistant > Data sources > CareerCoach_DataSource > Update S3](#)

The configuration page shows the following sections:

- Access control list (ACL) configuration file location - optional**: A text input field containing "s3://bucket-career-coaches/course_access_acl.json".
- Metadata files folder location - optional**: A note indicating it's optional and describes the folder containing metadata JSON.
- Filter patterns - optional**: A note indicating it's optional and describes patterns for folders, file types, or specific files.
- Multi-media content configuration - optional**: A note indicating it's optional and describes media content settings.
- Advanced Settings - optional**: A note indicating it's optional and describes advanced settings.

Sync run schedule:
Tell Amazon Q Business how often it should sync this data source. You can check the health of your sync jobs in the data source details page once the data source is created.

Frequency: Select how often you want your data source to sync. Set to "Daily".

Start time: Set to "02 : 56 (UTC)" which corresponds to "Local 05:56 AM (UTC+3)".

CloudShell Feedback: Shows the following JSON code:

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

© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Access Denied case (**career.one.coach** user):

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 has a title "Career Coach Assistant" and a user icon with the text "med 602". A message from the AI says "No answer is found" and "Generating an answer based on what I know...". It then states: "I apologize, but I notice this query 'med 602' lacks sufficient context for me to provide a meaningful response. Could you please provide more details about what specific information you're looking for? This could refer to:" followed by a list: "1. A medical course code" and "2. A medication number". At the bottom are tabs for "Company knowledge" and "General knowledge", and a search bar with "Ask a followup question", "Plugins", and "Advanced search". A note at the bottom says "Amazon Q Business uses generative AI. You may need to verify responses for accuracy. AWS Responsible AI Policy" with a link.

Access success case (**career.two.coach** user):

The screenshot shows the Career Coach Assistant interface. The sidebar and main area are identical to the previous screenshot, but the AI's response is different. It asks "What courses do you recommend for medicine?" and then replies: "Based on the available course information, there are no specific medicine-focused courses listed in the provided materials. The documents contain information about computer engineering, computer science, basic sciences, and engineering sciences curricula, but none specifically tailored for medicine or medical studies. [1] [2]" It then lists some science courses: "Some science courses that might be relevant as foundational knowledge include:

- CHEM 1151 and CHEM 1153 (General Chemistry for Engineers and Recitation) [1]
- PHY101 (Introduction to Physics-I) [2]
- PHY102 (Introduction to Physics-II) [2]
- MAT103 (Mathematical Methods-I) [2]

In the specialized areas, CSD352 (Computational Neuroscience) might be tangentially related to medical studies as it covers CNS and basic neurobiology, including neuroanatomy and neurophysiology. [2]" Finally, it asks for clarification: "Could you please clarify if you're looking for pre-medical courses, courses for a medical degree, or courses that complement medical studies from a specific discipline like computer science or engineering?" The interface elements at the bottom are the same as in the first screenshot.

Security/

Objects **Properties**

Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Name	Type	Last modified	Size	Storage class
course_access_acl.json	json	November 3, 2025, 15:55:03 (UTC+03:00)	1.4 KB	Standard

Upload: status

Summary

Destination	Succeeded	Failed
s3://bucket-career-coaches/data/Data/Security/	1 file, 1.4 KB (100.00%)	0 files, 0 B (0%)

Files and folders **Configuration**

Files and folders (1 total, 1.4 KB)

Name	Folder	Type	Size	Status	Error
course_access_acl.json	-	application/json	1.4 KB	Succeeded	-

- **Content Moderation:** Global Controls list configured to block restricted keywords (e.g., Gambling, Casino).

The screenshot shows the 'Chat orchestration settings - new' page. It includes a note about enabling hallucination mitigation and a section for feature settings like allowing file uploads and web experience customization. A 'Blocked words' section allows users to enter words to be removed from responses, with examples like 'Gambling', 'Casino', 'Self-harm', and 'Attack' listed.

The screenshot shows the 'Global controls' page under 'Admin controls and guardrails'. It displays response settings (allowing direct LLM queries and fallback), chat orchestration settings (allowing file uploads and automatic routing), and feature settings (allowing web experience customization). A 'Blocked words' section lists previously entered words. A 'Topic specific controls' section is also visible at the bottom.

Enhancements

Suggested improvements and future extensions of the application are summarized here.

The screenshot shows the AWS CloudFront Previewing CareerCoachAssistant interface. On the left, the main content area displays the "Career Coach Assistant" landing page with sections for "Summarize meeting notes", "Summarize a document", "Analyze customer feedback", and "Enhance document quality". On the right, a "Customize web experience" sidebar allows users to edit the "Title" (set to "Career Coach Assistant"), "Subtitle" (set to "AI-powered career coaching assistant"), and a "Welcome message" (set to "Your career goals matter. Let's explore training options and resources that match your strengths and aspirations"). A "Display sample prompts" checkbox is checked. At the bottom right of the sidebar are "Cancel" and "Save" buttons.

The screenshot shows the same interface, but the "Customize web experience" sidebar has been modified. The "Text" section now has a radio button for "Managed theming" (selected) and another for "Custom theming". The "Theme" section also has a radio button for "Managed theming" (selected). Below these, a "New conversation screen" section is visible, containing fields for "Background color" (#E9E9E9), "Primary title color" (#5A2F97), and "Font" (set to Arial). A "Logo" field contains the placeholder "s3://bucket/prefix/object".

Publish and share the application

This section represents how the publishing and sharing configuration is done as required in the seventh task.

 Share your app

CareerCoachAssistant is shared with all. Everyone can access the app from the library.

 qbusiness_2@vocareum.com Owner

 Share with all Everyone in this account can use

 Edit categories Tag published apps to be discovered in the library AI powered HR Career Coaching >

 App link <https://7hgmkadt.chat.qbusiness.us-west-2.on.a...> 

Custom labels

Below, you can create labels of your choosing which then can be added to the apps, allowing users to filter the library by clicking on a specific label for an organized search experience.

Label	Color	Action
AI powered	Green	<input type="button" value="Remove"/>
HR	Orange	<input type="button" value="Remove"/>
Training Recommendation	Cyan	<input type="button" value="Remove"/>
Career Coaching	Blue	<input type="button" value="Remove"/>
CV Reviewing	Pink	<input type="button" value="Remove"/>
General	Grey	<input type="button" value="Remove"/>

You can add up to 4 more label(s).

 Successfully updated custom labels. 

Amazon Q Apps Info View library in web experience

Apps Settings

Custom labels

Library display labels categorize published Amazon Q Apps (e.g., Finance, Marketing, HR). Labels are used to tag published Amazon Q Apps and can be filtered in the web experience library.



ⓘ Successfully updated custom labels. X

ⓘ Successfully updated state of CareerCoachAssistant to Verified X

Amazon Q Apps Info [View library in web experience](#)

[Apps](#) [Settings](#)

Published Amazon Q Apps in library (1/1) Info [Remove from library](#) [Update state](#)

Update the state to Verified to endorse that they have been validated for quality.

<input type="checkbox"/>	Name	Description	Creation time	Creator	State
<input checked="" type="checkbox"/>	CareerCoachAssistant	AI-powered assistant to automate resume...	Oct 06, 2025, 8:50 AM GMT+3	Career Coach Two	Verified

AI powered

HR

Career Coaching



CareerCoachAssistant

1 user | Published on November 19, 2025

AI-powered assistant to automate resume review, skill gap analysis, and personalized...



[Open](#)