

APPLIED NATURAL LANGUAGE PROCESING

BOOK STORE CHATBOT DEVELOPMENT

PART IV: Conversational AI System: Testing and Deployment

Testing Phase:

Functionality Testing:

Ensure that the AI system understands and responds appropriately to user queries related to ordering books, opening hours, location, and other relevant information.

Deployment Phase:

Please take note of the following steps:

1. Choose a Deployment Channel: Decide where you want to integrate the conversational AI system - on your bookstore website, through a dedicated mobile app, or on social media platforms.

The data we trained to the bookstore bot

| Title | Genre | Author | Theme |
|-------------------------------|----------|--------------------|-----------|
| Whispers of the Silent Forest | Fantasy | Mira Evergreen | Magic |
| Echoes in the Attic | Mystery | Thaddeus Sterling | Intrigue |
| Midnight Serenade | Romance | Isabella Moonlight | Love |
| The Enigma of Evermore | Sci-Fi | Orion Quantum | Mystery |
| Shadows in the Mist | Horror | Lucia Darkbane | Suspense |
| The Art of Vanishing | Thriller | Gideon Vanish | Crime |
| Ephemeral Dreams | Drama | Serena Dreamweaver | Life |
| Sirens of the Abyss | Fantasy | Nereus Oceansong | Mythology |
| Chronicles of the Lost Sky | Sci-Fi | Stella Nebulosa | Space |

| | | | |
|---|--------------------|----------------------|-------------|
| The Labyrinth of Illusions | Mystery | Ambrose Mirage | Mind Games |
| Infinite Horizons | Adventure | Aria Skylark | Exploration |
| A Symphony of Secrets | Thriller | Melody Noir | Music |
| The Forgotten Alchemy | Fantasy | Aurelia Alchemist | Magic |
| Crimson Legacy | Historical Fiction | Reginald Bloodworth | Legacy |
| Beneath the Silver Veil | Romance | Luna Silverwind | Love |
| Ripples in Time | Sci-Fi | Cyrus Chronomancer | Time Travel |
| The Whispering Gallery | Mystery | Olivia Whisper | Murder |
| Embers of Eternity | Fantasy | Phoenix Emberforge | Adventure |
| A Dance with Destiny | Romance | Desmond Starlight | Dance |
| Mysteries of the Celestial Sphere | Sci-Fi | Celeste Astral | Mysteries |
| The Haunting Melody | Horror | Harmony Shadowbrook | Music |
| The Quantum Quill | Fantasy | Quentin Quasar | Magic |
| The Silent Tide | Romance | Marina Moonlight | Love |
| Specters of Solitude | Horror | Samuel Spectral | Solitude |
| The Sapphire Cipher | Mystery | Sapphire Codebreaker | Crime |
| A Canvas of Stardust | Fantasy | Stella Stardust | Art |
| Whirlwind of Whispers | Romance | Zephyr Whispers | Love |
| The Oracle's Dilemma | Sci-Fi | Oracle Seraphina | Prophecy |
| Beyond the Velvet Curtain | Thriller | Velvet Shadow | Crime |
| Harry Potter and the Philosopher's Stone | Fantasy | J.K. Rowling | Magic |
| Harry Potter and the Chamber of Secrets | Fantasy | J.K. Rowling | Magic |
| Harry Potter and the Prisoner of Azkaban | Fantasy | J.K. Rowling | Magic |
| Harry Potter and the Goblet of Fire | Fantasy | J.K. Rowling | Magic |
| Harry Potter and the Order of the Phoenix | Fantasy | J.K. Rowling | Magic |

| | | | |
|--|--------------------|-----------------------|------------|
| Harry Potter and the Half-Blood Prince | Fantasy | J.K. Rowling | Magic |
| Harry Potter and the Deathly Hallows | Fantasy | J.K. Rowling | Magic |
| Harmony in Chaos | Fantasy | Chaos Harmony | Magic |
| Sculptors of Shadows | Horror | Shadow Sculptor | Art |
| The Enchanted Hourglass | Adventure | Enchantia Sandglass | Time |
| The Whispering Gallery | Mystery | Olivia Whisper | Murder |
| Ethereal Echoes | Fantasy | Etherea Echo | Magic |
| The Velvet Maze | Thriller | Velvet Labyrinth | Crime |
| The Alabaster Paradox | Sci-Fi | Alabaster Enigma | Paradox |
| Aurora's Embrace | Romance | Aurora Whisperwind | Love |
| The Echoing Halls | Horror | Echo Hallows | Echoes |
| Veins of Veracity | Mystery | Veronica Veins | Crime |
| The Celestial Almanac | Sci-Fi | Celestia Almanac | Space |
| Whispers from the Forgotten World | Fantasy | Forgotten Whispers | Magic |
| The Silver Scepter | Historical Fiction | Silver Sovereign | Royalty |
| Waltz of the Nebulae | Romance | Stellar Waltz | Love |
| The Clockwork Conspiracy | Adventure | Clockwork Conspirator | Conspiracy |
| Shrouded in Stardust | Sci-Fi | Stardust Shroud | Space |
| The Quantum Rose | Fantasy | Rosetta Quantum | Magic |
| Labyrinth of Luminance | Mystery | Lumina Labyrinth | Light |
| Abyssal Sonata | Horror | Abyss Sonata | Music |
| The Stellar Enigma | Sci-Fi | Stellar Enigma | Space |
| | | | |

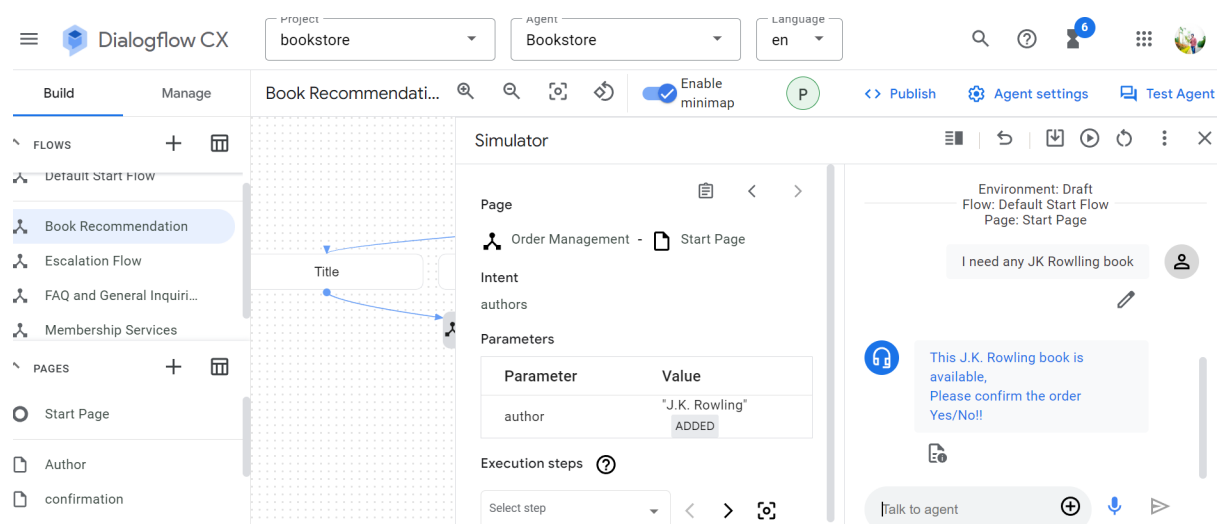
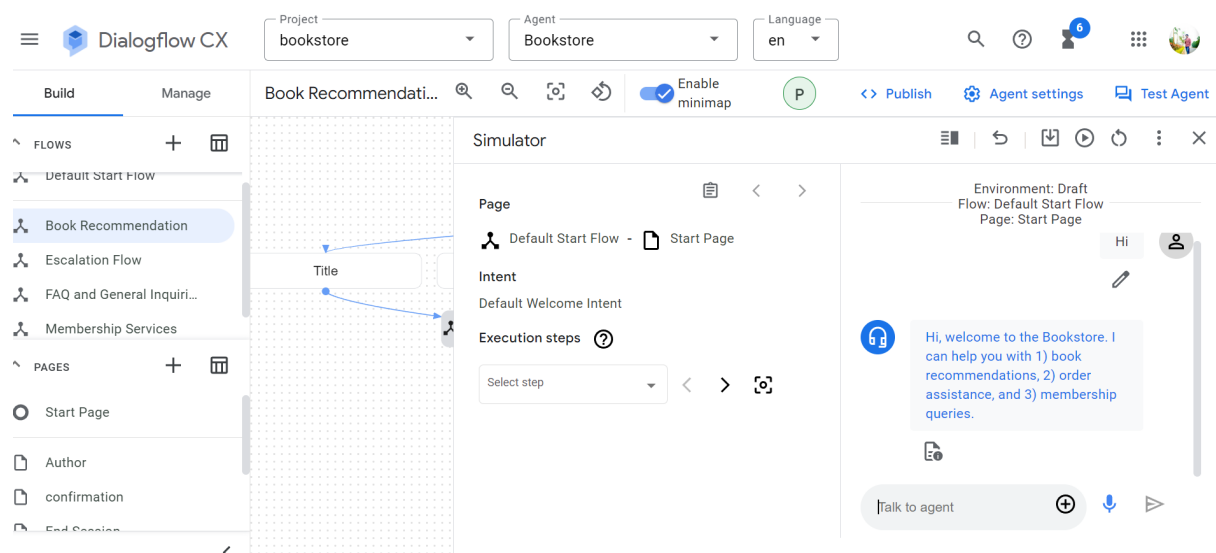
User Experience Testing:

Test the conversational flow to ensure a smooth and intuitive interaction. Check for natural language understanding and generation to make sure the system comprehends user input accurately and provides coherent responses.

Integration Testing:

Verify the integration of the conversational AI system with other platforms or systems the bookstore might use, such as a website, mobile app, or social media channels.

1. Click the Test Agent button on the right side of the screen.
When you first open the simulator, you need to select an agent environment and active flow. In most cases, you should use the draft environment and default start flow.
2. Type: Hi



Dialogflow CX

ProjectbookstoreAgentBookstoreLanguageen

BuildManage

Order Management

Enable minimapPublishAgent settingsTest Agent

Build

Manage

Order Management

Routes

Simulator

Table is sorted by execution c

Search Search routes t

Intent

end.flow

confirmation

confirmation

theme

Add route

Page

Book Recommendation - confirmation

Intent

confirmation

Parameters

Parameter

Value

confirmation

"yes"

ADDED

genre

"Drama"

Execution steps

Environment: Draft

Flow: Default Start Flow

Page: Start Page

This \$session.params.theme book is available, Please confirm the order Yes/No!!

yes

Talk to agent

Dialogflow CX

ProjectbookstoreAgentBookstoreLanguageen

BuildManage

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Enable minimapPublishAgent settingsTest Agent

Build

Manage

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Routes

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Intent

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Add route

Page

Book Recommendation - confirmation

Intent

confirmation

Parameters

Parameter

Value

confirmation

"yes"

ADDED

genre

"Drama"

Execution steps

Environment: Draft

Flow: Default Start Flow

Page: Start Page

Thank you for your order Your order id is #AB1234.

Thank you for your order

yes

Talk to agent

Dialogflow CX

ProjectbookstoreAgentBookstoreLanguageen

BuildManage

Order Management

Enable minimapPublishAgent settingsTest Agent

Build

Manage

Order Management

Routes

Simulator

Table is sorted by execution c

Search Search routes t

Intent

end.flow

confirmation

confirmation

theme

Add route

Page

Order Management - cost

Intent

confirmation

Parameters

Parameter

Value

author

"JK Rowling"

confirmation

"yes"

ADDED

cost

"=\$30"

ADDED

Execution steps

Environment: Draft

Flow: Default Start Flow

Page: Start Page

The total cost : \$30

Thank you for your purchase

yes

Talk to agent

Multi-Channel Testing:

Test the AI system's performance across various channels, such as website chat, social media messaging, or dedicated apps.

Error Handling Testing:

Assess how the system handles unexpected or incorrect user inputs. Implement effective error messages or fallback mechanisms.

Testing Scenarios:

1. User Browsing by Genre:
 - User: "I want to explore books by genre."
 - Flow starts: Start Page -> Choose "Browse by Genre" -> Genre Block
2. User Browsing by Theme:
 - User: "Show me books based on themes."
 - Flow starts: Start Page -> Choose "Browse by Theme" -> Theme Block
3. User Browsing by Author:
 - User: "Tell me about books by J.K. Rowling."
 - Flow starts : Start Page -> Choose "Browse by Author" -> Author Block
4. User Requesting Book Recommendation:
 - User: "Can you recommend a mystery novel?"
 - Flow starts: Start Page -> Choose "Get Recommendation" -> Book Recommendation Block
5. User Asking About a Specific Book:
 - User: "Is 'The Great Gatsby' available?"
 - Flow starts: Start Page -> Choose "Search for a Specific Book" -> Specific Book Block

Test pre-recorded test cases

1. Select Manage > Test Cases in the Dialogflow main menu on the left.
2. Select all the test cases and press the Run button, above the table.

Dialogflow CX will run all the selected test cases against the recording that was saved as a "Golden Test Case", if the results are the same as how you saved it, then the tests are passed. - Did something change in the flows like Pages that are not correctly configured, or intents that directed you to the wrong pages, then the tests will fail.

1. **Integrate with Existing Systems:** Integrate the AI system with other bookstore systems, such as inventory management, order processing, or customer relationship management tools.
2. **Implement Security Measures:** Implement security protocols to protect user data and ensure secure transactions, especially if the AI system involves handling sensitive information.
3. **Ensure Data Privacy:** Implement data privacy measures to protect user information, such as anonymization or secure storage, especially if the AI system handles personal data.
4. **Plan for Scalability:** Plan for scalability, considering potential increases in user interactions. Ensure that the system can handle higher loads during peak times.
5. **Set up Continuous Monitoring:** Set up monitoring tools to keep track of the AI system's performance and user interactions. This helps identify and address issues promptly.
6. **Implement a User Feedback Mechanism:** Implement a feedback mechanism to gather user input on the AI system's performance. Use this feedback to make continuous improvements.
7. **Regular Updates:** Ensure that the AI system is up to date with regular updates.

New Generative AI features are now available. Try it out and review the documentation, pricing details for FREE trial and monthly minimum charges. [Documentation](#) [Pricing details](#) [X](#)

Build **Manage** [← I have a question my order](#) [Run](#) [Save as Golden](#) [v](#)

| | Expectation | Latest run (Passed) |
|-----------------------------------|----------------------|----------------------|
| RESOURCES | Dec 4, 2023 07:10 AM | Dec 4, 2023 07:11 AM |
| Intents | | |
| Entity types | | |
| Webhooks | | |
| Route groups | | |
| Data stores [new] | | |
| Generators | | |
| TEST & FEEDBACK | | |
| Test cases | | |
| Validations | | |
| Change history | | |
| Conversation history | | |

Webhook: On

hello

Welcome, I am the virtual agent of G-Records, a fictional rock label. You can order bakery merchandise, ask questions about your order or shipping. How can I help?

I have a question about my order

I can look up the status of your order, or I can cancel an order. What's the order number? For example 123456A

the ordernumber is 456783G

Webhook: On

hello

Welcome, I am the virtual agent of G-Records, a fictional rock label. You can order bakery merchandise, ask questions about your order or shipping. How can I help?

I have a question about my order

I can look up the status of your order, or I can cancel an order. What's the order number? For example 123456A

the ordernumber is 456783G

Compliance: It is important to ensure that the deployment adheres to relevant data protection regulations and industry standards.

Training for Staff: The bakery staff should be trained to assist customers who may prefer human interaction or encounter issues with the AI system.

Marketing and Promotion: Developing a marketing strategy is crucial to promote the new AI system and encourage customers to use it for a better overall customer experience.

In Dialogflow CX, test coverage is a measure used to describe the degree to which the dialogue of the virtual agent (Pages and Intents) is executed when a particular test suite runs. A virtual agent with high test coverage, measured as a percentage, has had more of its dialogues executed during testing, which suggests it has a lower chance of containing undetected bugs (like missed understood requests) compared to a virtual agent with low test coverage.

1. To view a test coverage report for all test cases, click Coverage.
2. Click on the tab Transitions.

This will show you the test coverage for all the page transitions.

Dialogflow CX

Project

bookstore

Agent

Bookstore

Language

en

Search

Help

Profile

6

Grid

Avatar

Build

Manage

Data stores

[new]

Generators

TEST & FEEDBACK

Test cases

Validations

Change history

Conversation history

Analytics

[new]

TESTING & DEPLOYMENT

Git

Versions

Coverage

Transitions

Intents

Route Groups

| Source | Target | Covered |
|--|--|---------|
| <div>Book Recommendation</div> - <div>Title</div> | <div>Order Management</div> | Yes |
| <div>Book Recommendation</div> - <div>Title</div> | | Yes |
| <div>Book Recommendation</div> - <div>confirmation</div> | | Yes |
| <div>Book Recommendation</div> - <div>Author</div> | <div>Order Management</div> | Yes |
| <div>Book Recommendation</div> - <div>Author</div> | <div>Order Management</div> | Yes |
| <div>Book Recommendation</div> - <div>Genre</div> | <div>Order Management</div> | Yes |
| <div>Book Recommendation</div> - <div>Genre</div> | <div>Book Recommendation</div> - <div>confirmation</div> | Yes |
| <div>Book Recommendation</div> - <div>Genre</div> | <div>Book Recommendation</div> - <div>confirmation</div> | Yes |

3. Click on the tab Intents.

This will show you the test coverage for all the intents.

Build

Manage

Data stores [new]

Generators

TEST & FEEDBACK

Test cases

Validations

Change history

Conversation history

Analytics [new]

TESTING & DEPLOYMENT

Git

Versions

← Coverage

Transitions

Intents

Route Groups

| Intent | Covered |
|------------------------|---------|
| redirect.services | Yes |
| redirect.escalation | Yes |
| redirect.FAQ | Yes |
| Default Welcome Intent | Yes |
| theme | Yes |
| title | Yes |
| End Session | Yes |
| authors | Yes |
| redirect.order | Yes |