
ORACLE®

Oracle Intelligent Bots Advanced Training

Design Practices, Hints & Tips

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Topic Agenda

1. Bot Scopes
2. Custom Component Design
3. Custom Component Response
5. Custom Component Error Handling
6. Managing User Profiles
7. Strategies for unlocking users

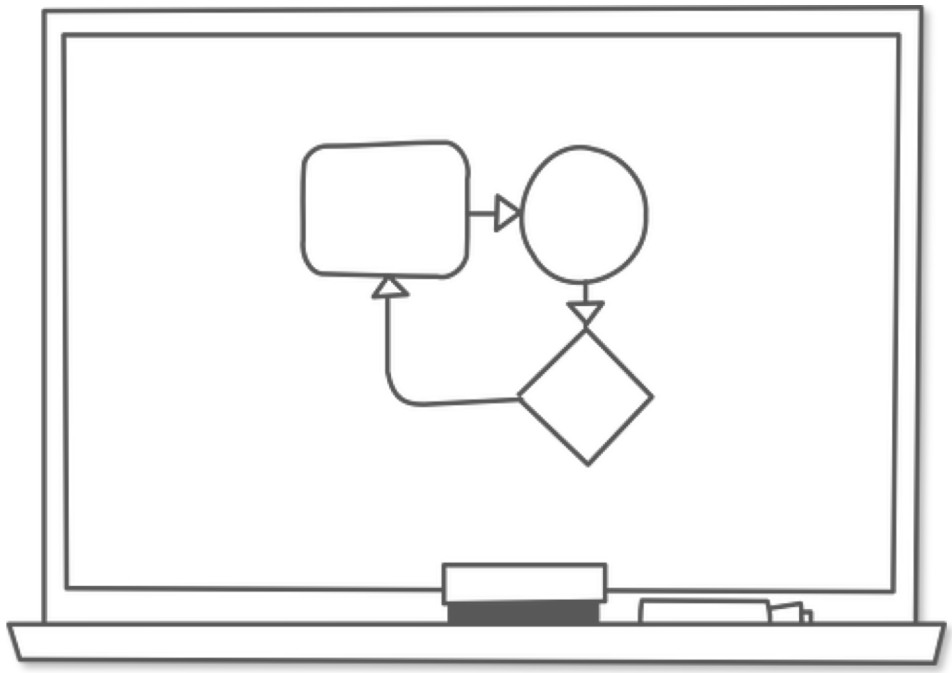
Design Practices, Hints & Tips

Bot Scopes

Bots with a **narrow scope** enjoy a **reduced error surface**

Design Recommendation

- Start small & get it working
- Develop the bot for an objective
  - Avoid building monolithic bots
  - Focus on a task
- Before you start, be clear on
  - Conversation flows
  - Intents
  - Entities



Think of Custom Component Services as the equivalent of **libraries** in Java

Design Custom Component Services as Libraries

- Build with resuse in mind
- Share helper classes and infrastructure
  - E.g. share implementation to read/write to Oracle Mobile Storage or DB
- Defines the scope and size of component service

Custom Component Naming Conventions

- Choose a descriptive component name
  - A good component name describes what the component does
  - Do the same for input-parameter names and action strings
- Use a prefix to ensure the component name is unique
  - JavaScript doesn't know of name spaces
  - Expect your component to be used with 3rd party components

Align Custom Component With System Components

- Add keepTurn property if component is read-only
- Use "variable" property If there is a single context variable to update
- Use actions
  - Supported action strings returned with "transition"
  - Name action sensibly

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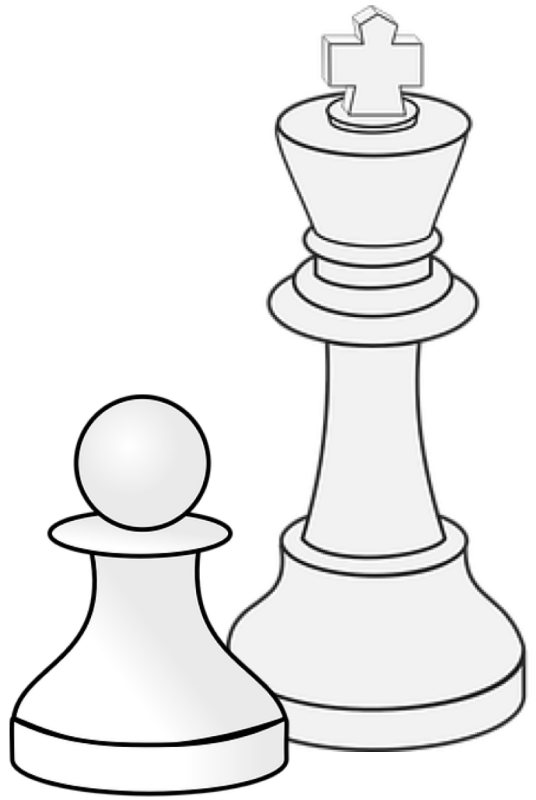
Custom Component Responses

Custom Component Response Strategies

- Two Broad Strategies
  - Render Response to Messenger Client
    - Use Conversation Message Model
    - Handle complete task
  - Save Data in Context Variable
    - Render data using CRC component



Writing Data to a Context Variable

- **PRO**
  - Smaller response payload
  - Data saved in context variable until variable is reset or dialog flow is exit
  - Data can be auto-translated when displayed by system components
  - Data can be used with message bundles

- **CON**
  - No option available to describe the data structure to bot designers
    - Makes it hard to share the component
  - Requires bot designer to know how to use the component
    - E.g. need to create context variable

Writing Response to Message Channel

- **PRO**
  - No need to document response data structure
  - Custom component developers have full control over the rendered UI
  - Component can be designed as "black box" for easy reuse
- **CON**
  - Component response is more verbose compared to when just sending data
  - Data objects cannot be cached
    - Information needs to be re-queried if needed more often
  - Multi-language translation must be handled by the component

Be Mindful when saving data in context variables**. A bot is not a database**

Image courtesy of Farbentek at FreeDigitalPhotos.net

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Custom Component Error Handling Practices

As a minimum, **custom components should handle** internal **errors** and return 'error' action

Error Handling Practice: A Suggestion

- Define custom set of error actions for custom components to use
  - authenticationError
  - applicationError
    - Action string returned for all kinds of http-4** errors
    - Action string returned for errors in the custom component logic
  - serverError
- Enforce use of custom error message variable
  - conversation.variable('_errorMesssage', <the message>);

If you need to **display error messages** to the user, display them **in the user language**

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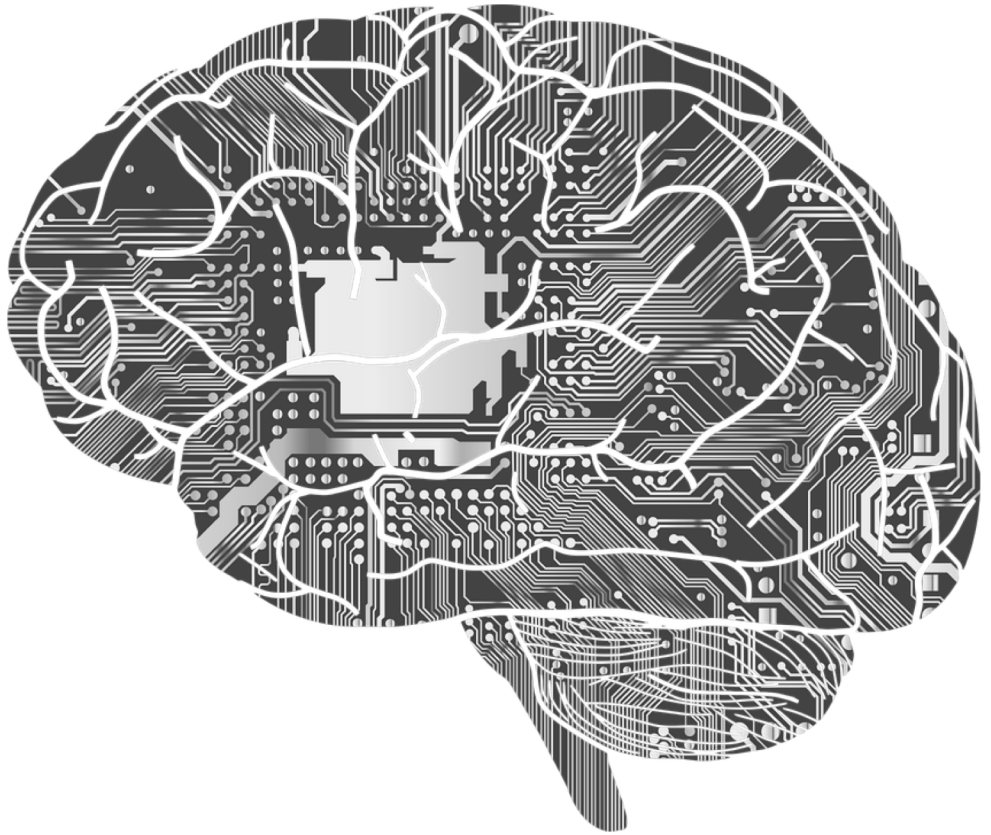
Managing User Profiles

A **user profile** presents the **memory** an application has about a user

Where to Save User Information ?

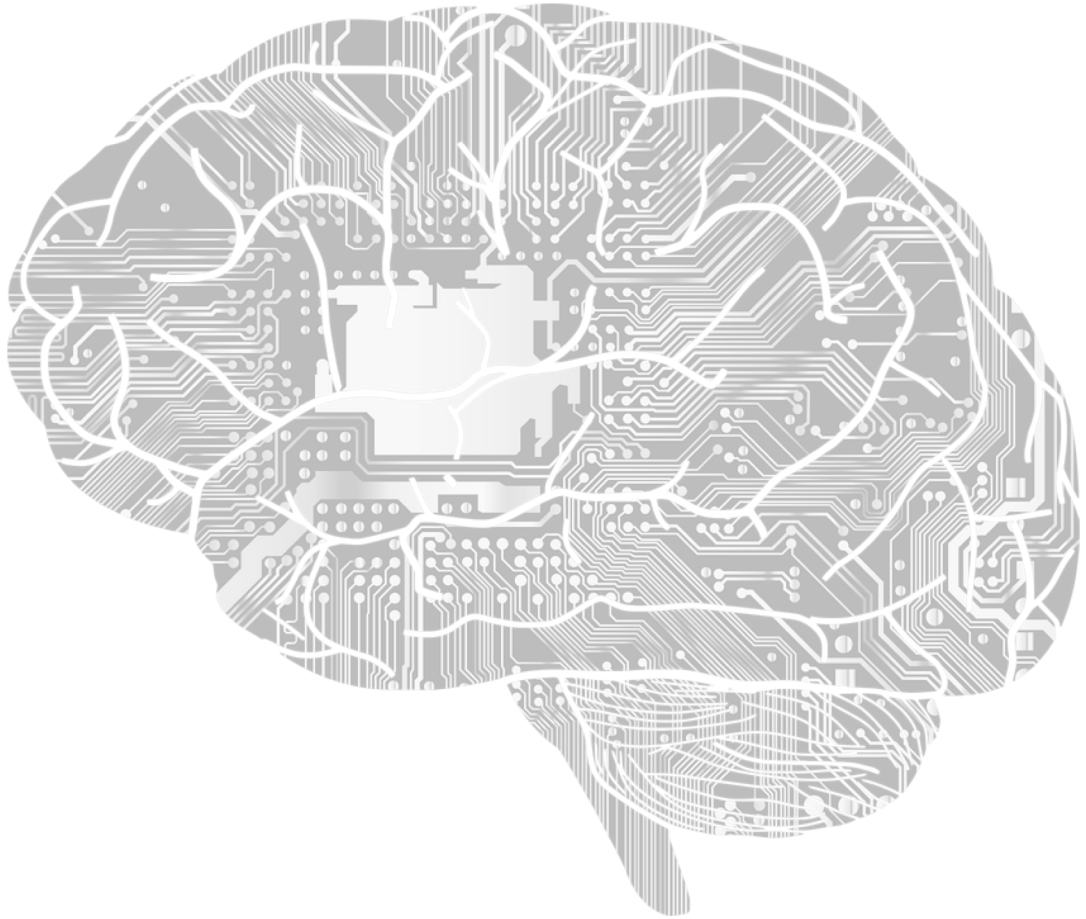
Long-Term Memory



Short-Term Memory

Options

- Bot Options
  - Context variable
  - User scope variable
- Oracle Mobile Cloud Options
  - Oracle Mobile Database
  - Oracle Mobile Storage
  - Remote Service



Bot User Scope Variable

- Information persisted in Cloud Database
- Information saved for specific bot and channel
  - Accessible across user – bot conversations and sessions
- Cannot be shared with other applications or bots

Creating & Reading User Scope Variables

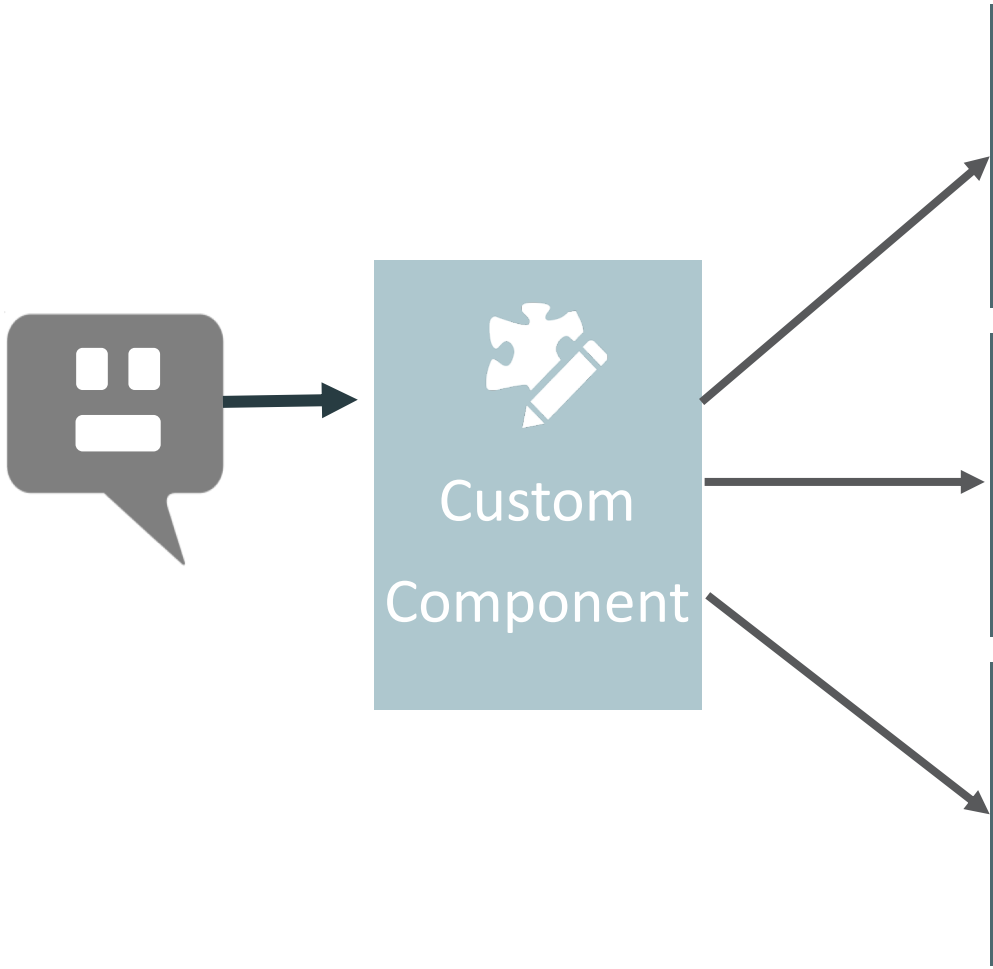
- **Write**

```
setUserInformation:
  component: "System.SetVariable"
  properties:
    variable: "user.preferredLocale"
    value: "de"
```

- **Read**

```
readUserInformation:
  component: "System.SetVariable"
  properties:
    variable: "profile.locale"
    value: "${user.preferredLocale}"
```

Oracle Mobile Cloud Options

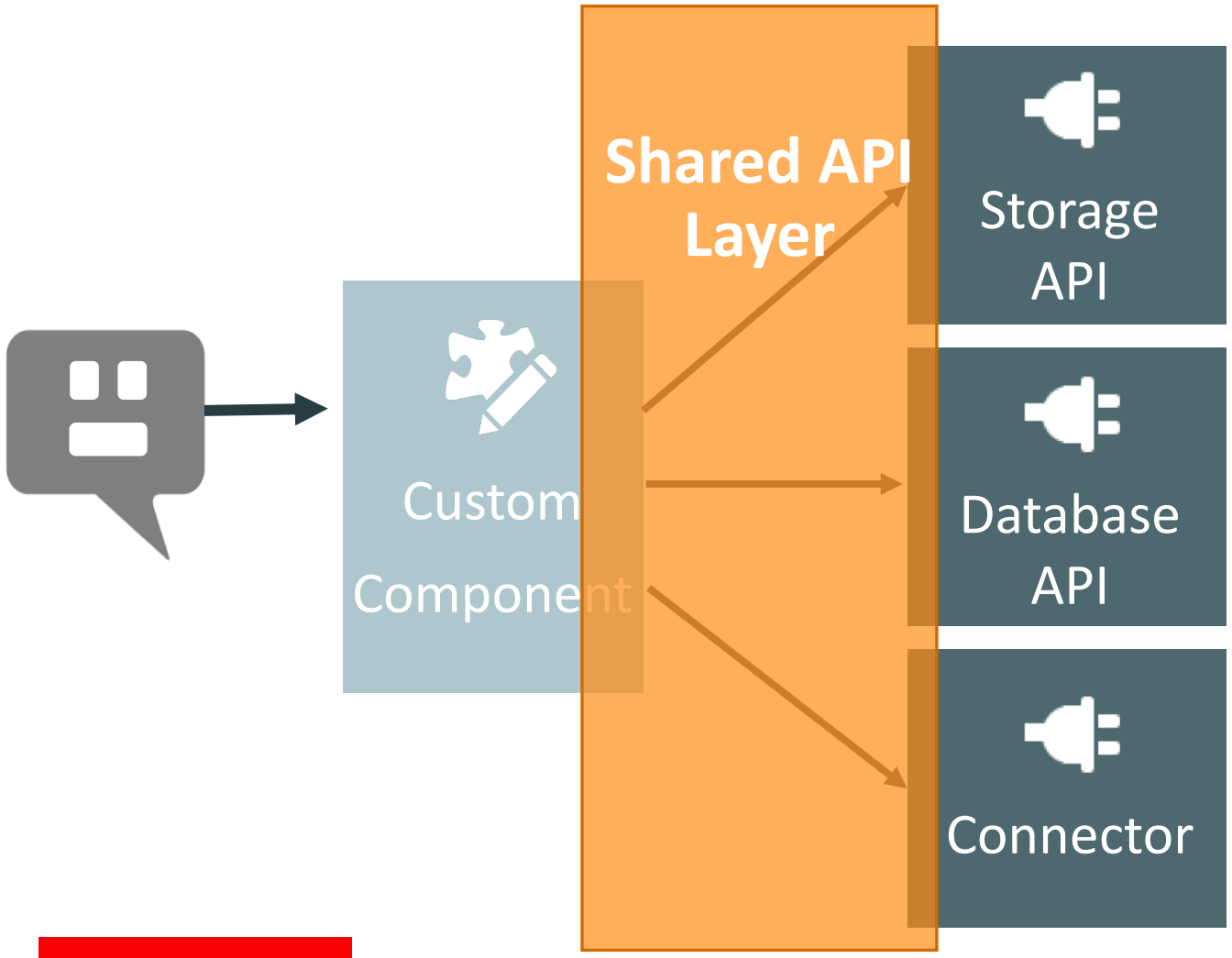


- Write content as JSON object to storage
- Object saved in Mobile Cloud database
- JSON object can be set to context variable
- Content can be encrypted before saving
- External edit possible if no encryption

- Write content into database table
- Create, update, delete option
- Profile information shared across apps using Oracle Mobile Cloud

- Access to remote REST or SOAP service
- Integrates on premise solutions
- Allows user profiles to be shared across apps and environments

Oracle Mobile Cloud Options



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Strategies for unlocking users

A bot is no prison. Allow users to escape.

Strategies

- Use list or button choices for questions with a limited set of answers
  - Clear guidance is better than user's guessing
- "maxPrompts" property
  - Uses cancel action transition after max. number of failed input attempts
- Cancel button on list and card UI
  - Allows users to exit a conversation
- Use Instant Apps to simplify user input
- Configure and detect "exit" words in user input
  - Custom component or Apache FreeMarker expressions required

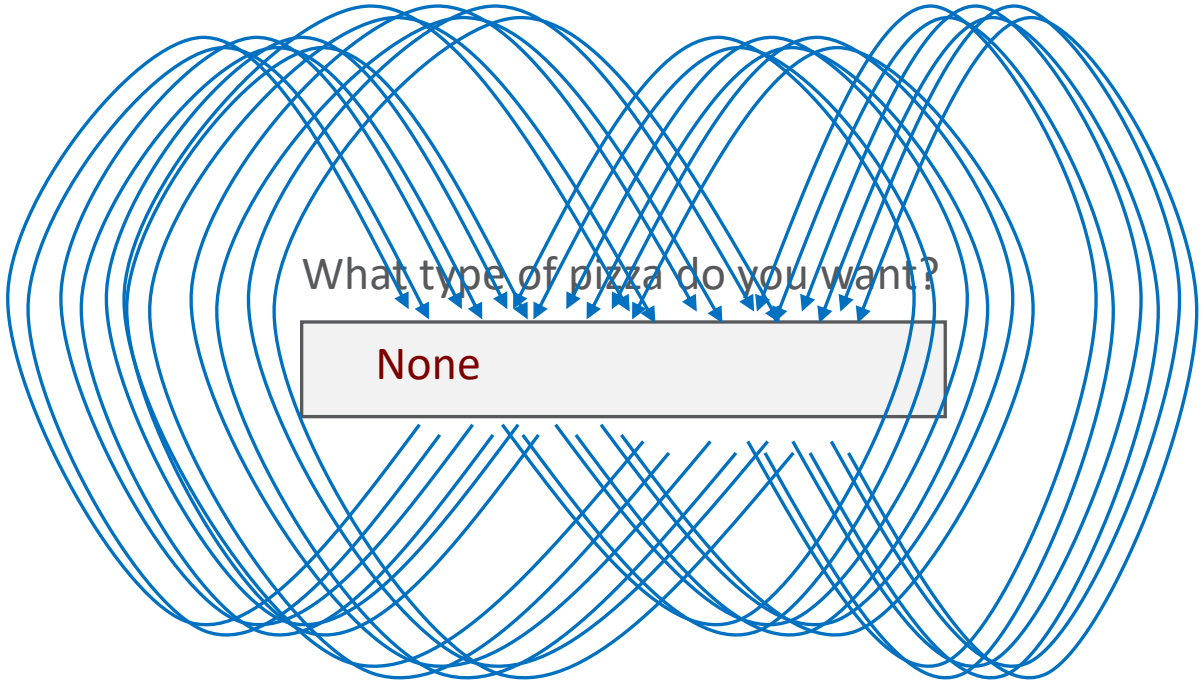
maxPrompts

- Default input component behavior is to keep a user in a loop until she provides a valid input
  - For variables of entity type
- maxPrompts property allows bot designers to set a maximum count of failed input attempts
  - Component triggers ***cancel*** action if max count is exceeded
  - Bot designer to handles ***cancel*** action in flow
  - User is *unlocked* when **cancel** action is triggered

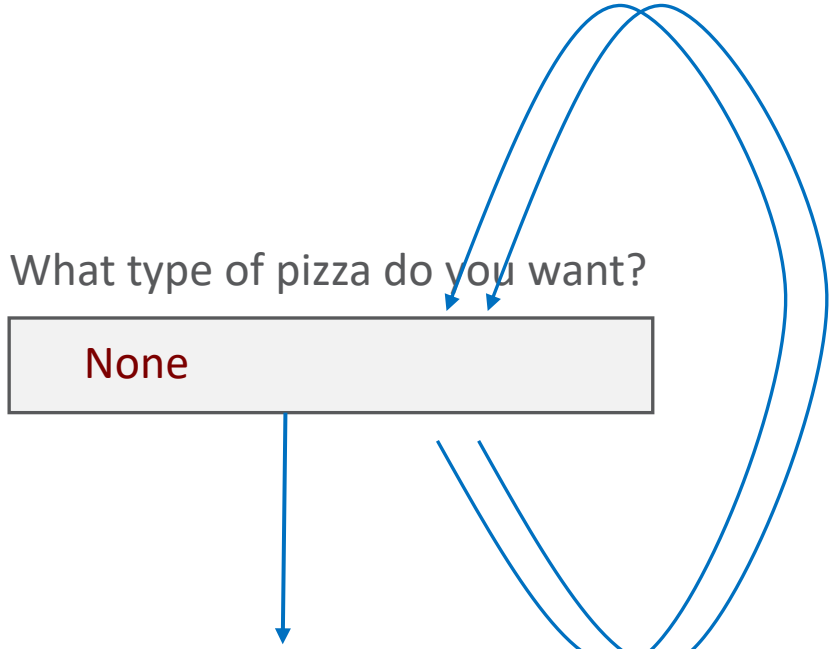
Input Validation

With and Without maxPrompts property set

Component: System.Input
properties:
variable: "entity_based_variable"



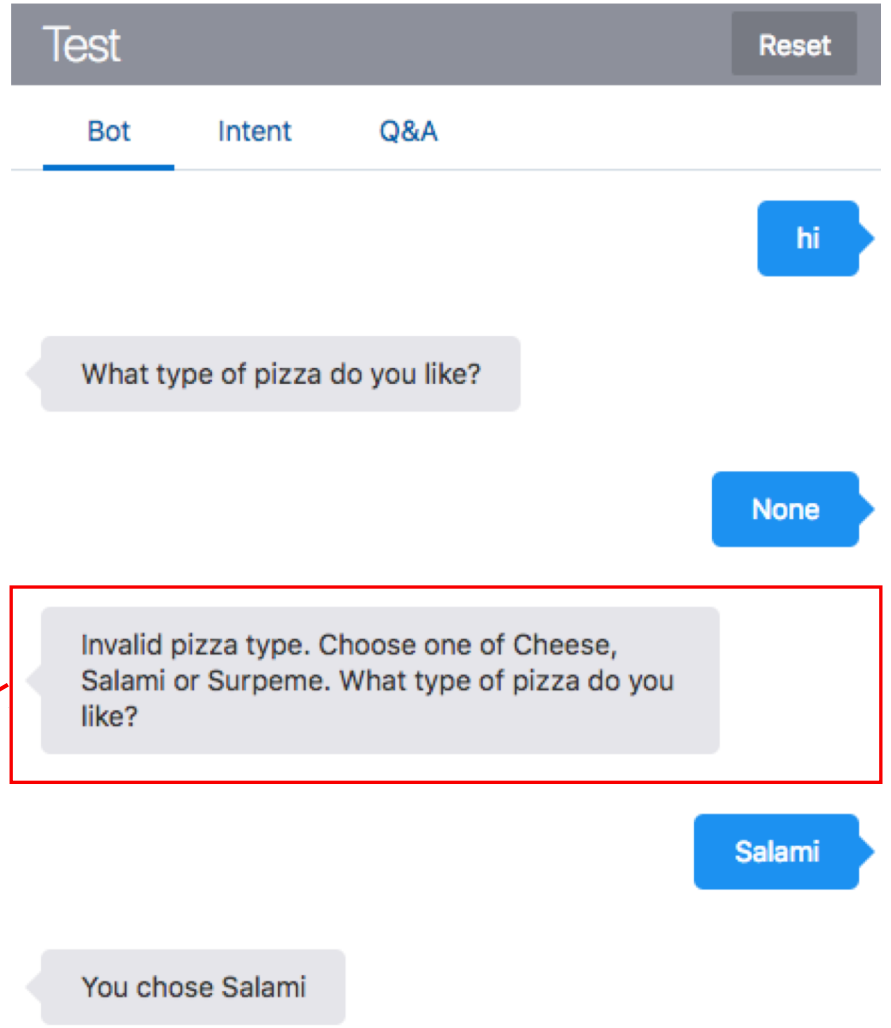
Component: System.Input
properties:
variable: "entity_based_variable"
maxPrompts: 3



Show Different Prompts

- Show different prompt after failed user input
- *system.invalidUserInput* variable set to true after failed input attempt
- Use Apache FreeMarker <#if > </#if> expression to conditionally show prompts

```
askPizzaType:
  component: "System.Text"
  properties:
   prompt: "<#if system.invalidUserInput == 'true'>Invalid pizza type.
                Choose one of Cheese, Salami or Surpeme. </#if>
               What type of pizza do you like?"
   variable: "pizza"
   transitions:
     actions:
       cancel: "provideHelp"
```

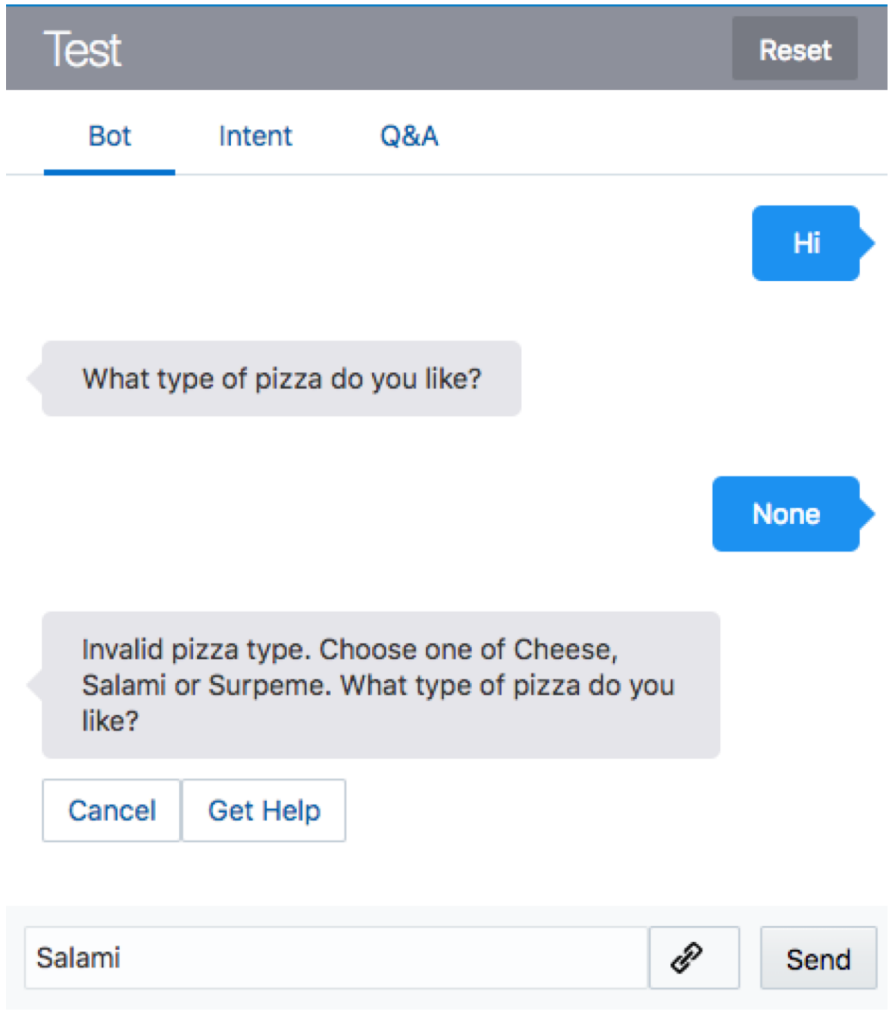


A Better User Experience

Show A Way Out

- Show choice of possible actions after failed input attempt
- Use CR component instead of System.Text
  - Don't set maxPrompts value
- Use postback action to allow users to escape validation loop
  - Global actions
  - Use CR *onInvalidUserInput* property to display actions after first failed input attempt

A Better User Experience



Unlock user …

or take order …

A Better User Experience

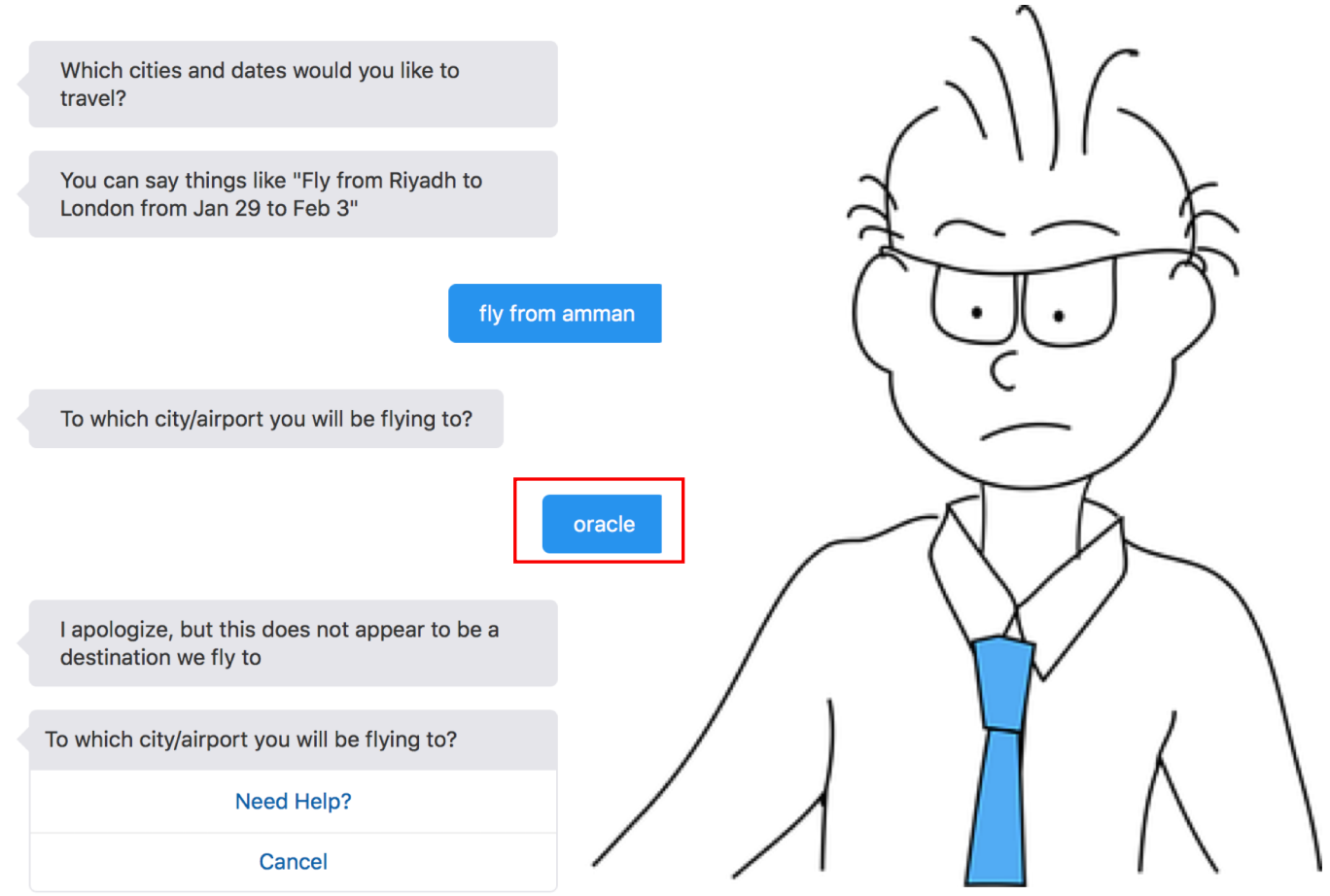
```
askPizzaType:
  component: "System.CommonResponse"
  properties:
    processUserMessage: true
    variable: "pizza"
    metadata:
      responseItems:
      - type: "text"
        text: "<#if system.invalidUserInput == 'true'>Invalid pizza type.
               Choose one of Cheese, Salami or Surpeme. </#if>
               What type of pizza do you like?"
    globalActions:
      - label: "Cancel"
        type: "postback"
        visible:
          onInvalidUserInput: true
        payload:
          action: "doCancel"

      - label: "Get Help"
        type: "postback"
        visible:
          onInvalidUserInput: true
        payload:
          action: "getHelp"
  transitions:
    actions:
      doCancel: "handleCancel"
      getHelp: "provideHelp"
```

Take order …

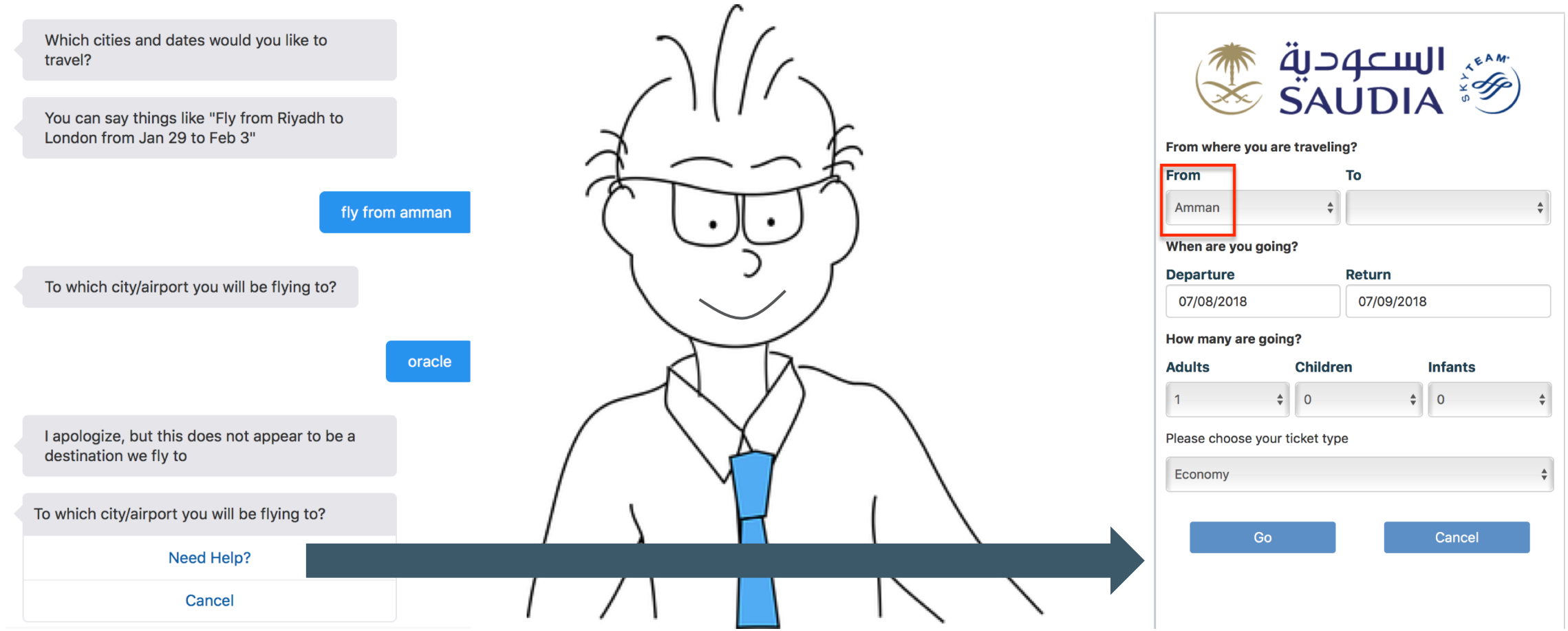
or unlock user …

Handle user choice

Use Instant Apps to Help Users

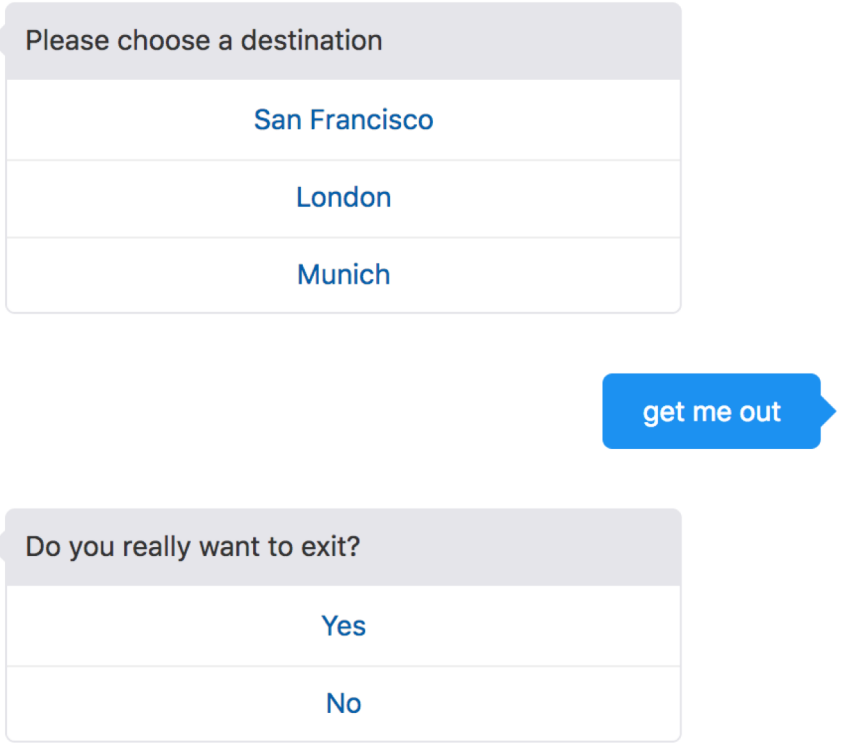


Use Instant Apps to Help Users

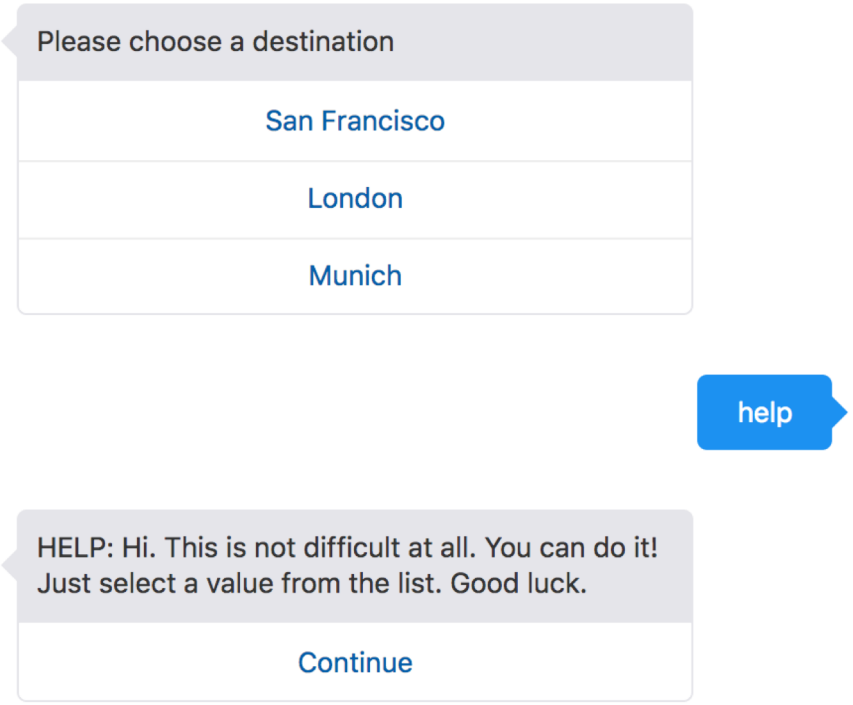


Custom Component to Handle Stop and Help Keywords

Stop Keywords



Help Keywords



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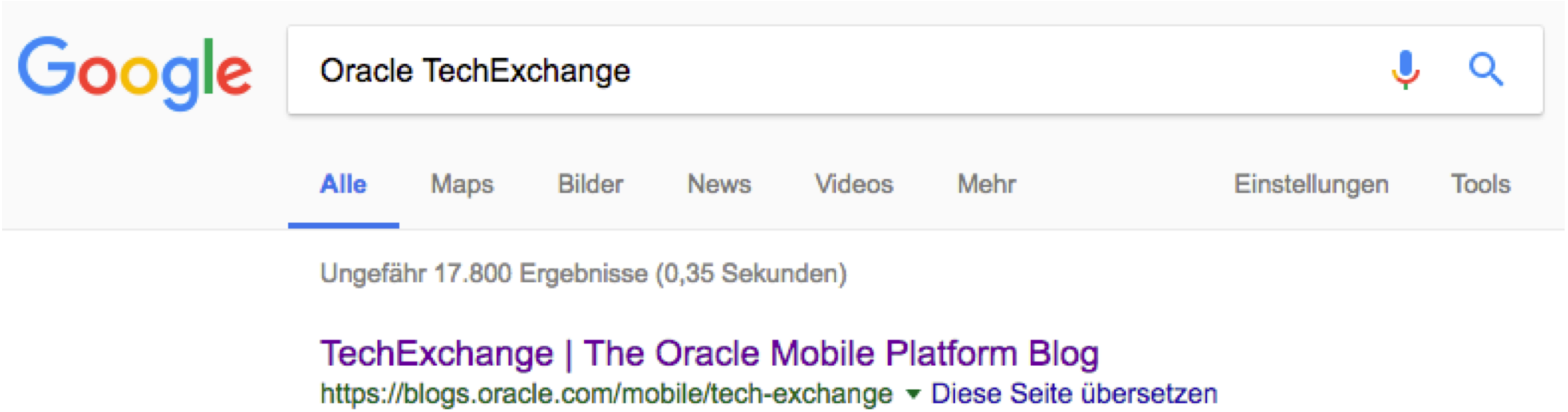

Advanced Bot Training Hands-On

Lab 9: Unlocking users in a bot conversation

Integrated Cloud

Applications & Platform Services


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