Say Hello!: A conversational system for ESL Learners
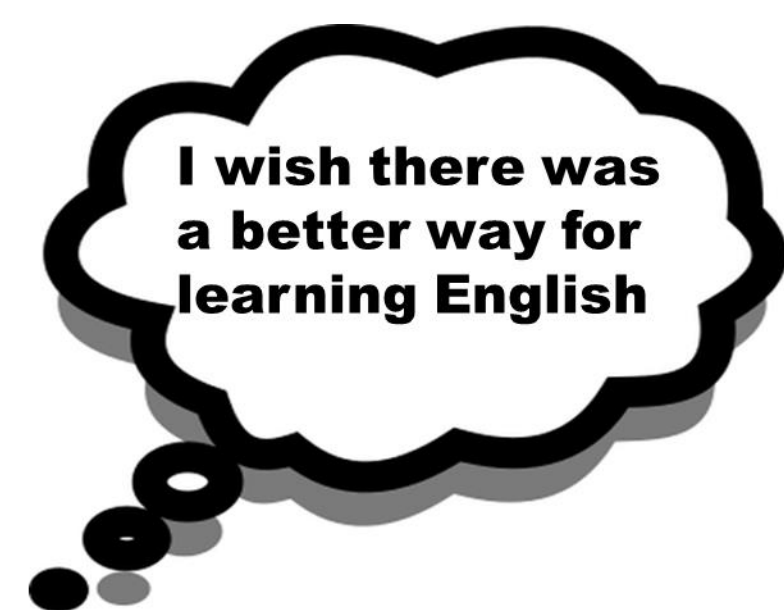
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Introduction

Say Hello is a conversational English vocabulary tutor bot for non-native speakers of English. The goal is to help users build and train English vocabulary through exercises and improve speaking skills through conversational flows.
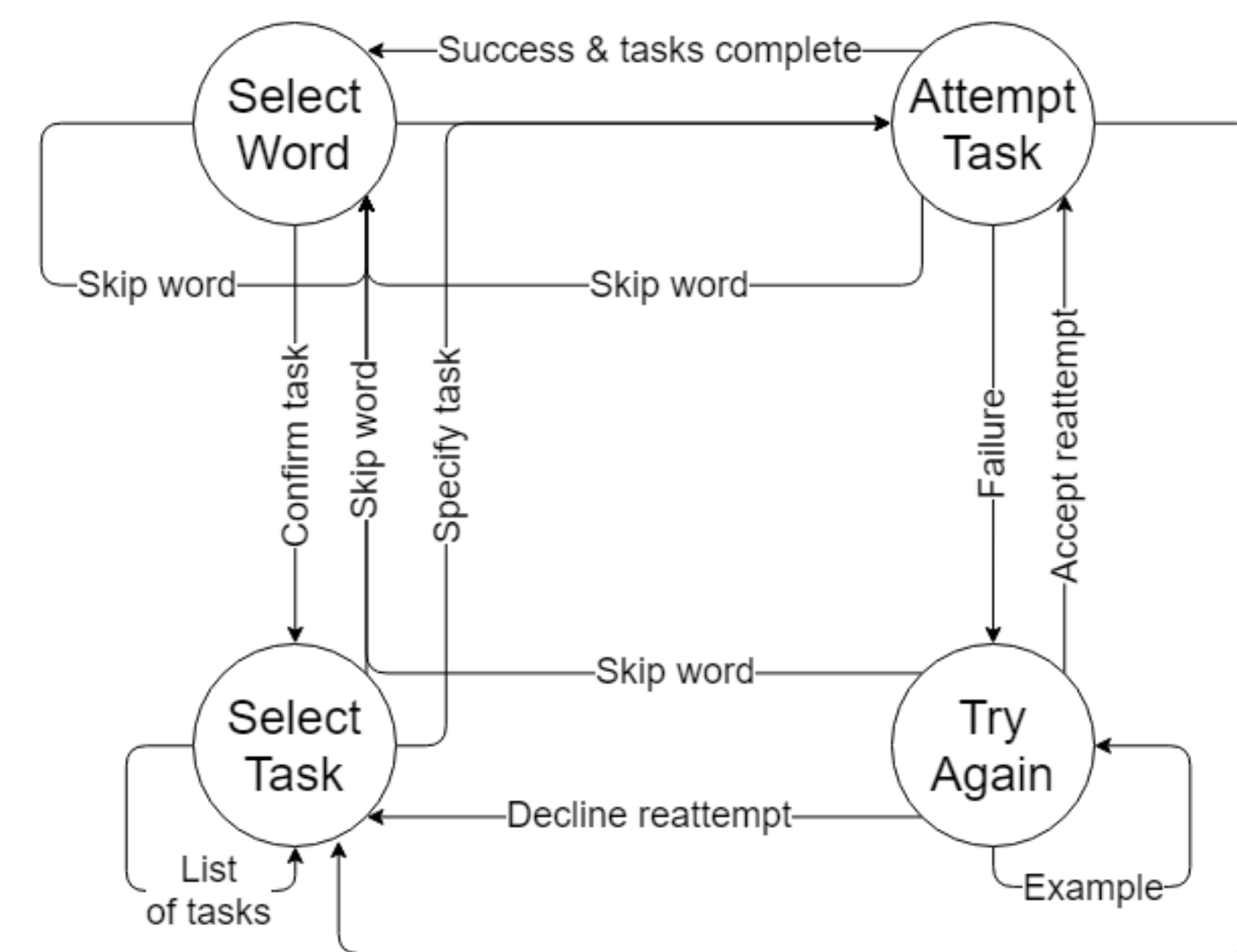
Target users are students preparing for the TOEFL exam (standardized test measuring English language proficiency) and need training for their vocabulary and conversational skills.
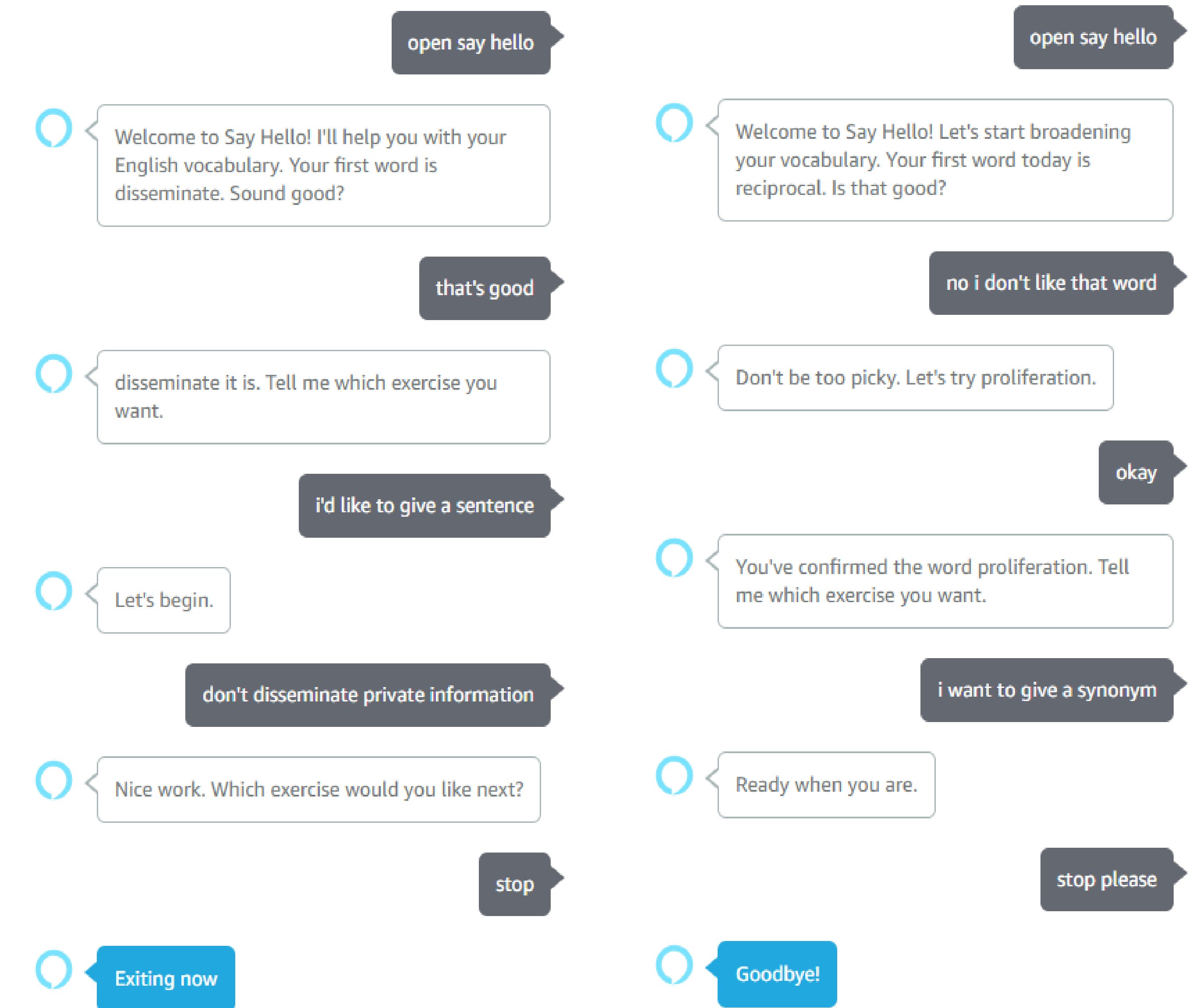

Features

- Three different training exercise options:
  - Definitions
  - Synonyms
  - Example Sentences
- User tracking memorizes words already visited to prevent repeats
- Answer verification provides immediate feedback to user.
- Example answers built into model available upon user request.
- Contextual help response guides user through the skill.
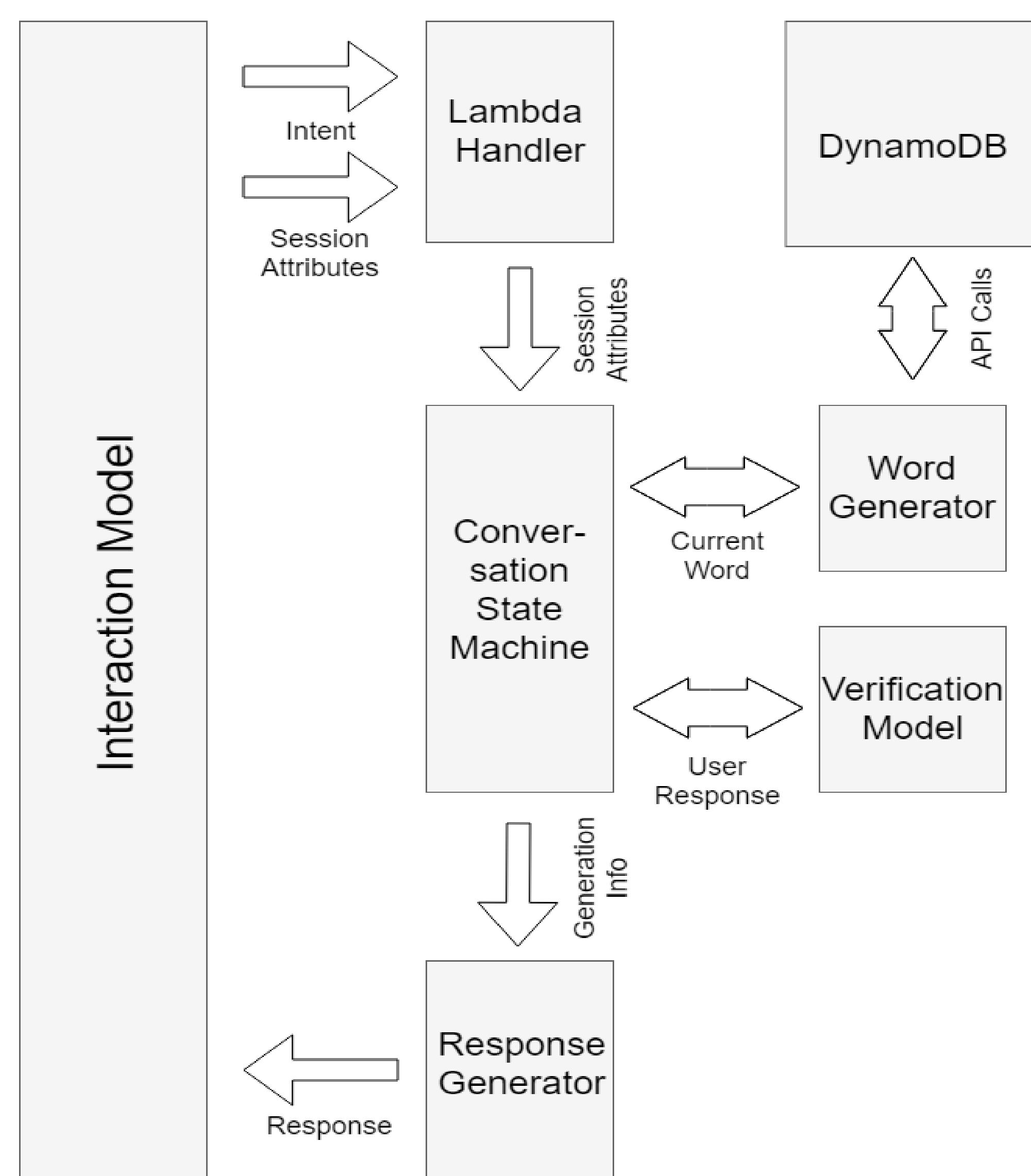- Retrainable verification model for easy dictionary growth.

Dialog Manager: Conversational FSM

Sample Dialogs

Backend Architecture

Interaction Model

Built-in Intents	Custom Intents
cancel	Skip word
help	Give an example answer
stop	What are the tasks
no	Specifying a task
yes	Giving an answer to verify
	Go to next task
	Agreeing to try again

- Flexible to call intents from multiple states
- The User Answer slot when user attempts a task works as semi-catchall slot in order to obtain wide array of possible answers.

Database

index	word
0	supplant
1	disseminate
2	reciprocal
3	stereotype
4	conspicuous
…	…

word	info
supplant	{'syn':[replace, override, …], 'def':[….], 'exa':[….]}
disseminate	{'syn':[scatter, disperse, …], 'def':[….], 'exa':[….]}
reciprocal	{'syn':[mutual, shared, …], 'def':[….], 'exa':[….]}
stereotype	{'syn':[standard, pattern, …], 'def':[….], 'exa':[….]}
conspicuous	{'syn':[obvious, clear, …], 'def':[….], 'exa':[….]}
…	…

user	words
'amzn1.ask.account.AGZW…'	[supplant, reciprocal, …]
'amzn1.ask.account.AHL3…'	[stereotype, conspicuous, …]
'amzn1.ask.account.AYNZ…'	[supplant]
'amzn1.ask.account.APQN…'	[disseminate, …]
'amzn1.ask.account.ARTC…'	[conspicuous]
…	...

Challenges and Future Work

Challenges:

The Interaction Model presented a variety of technical challenges:
Exercise response had to be general to capture scope of possible inputs, often caught inputs specific to other intents
Intents with single words (yes, no, hello) as example phrases would capture all single-word inputs

Verification Model met following challenges:
Available corpora: TOEFL words are not rare, but uncommon enough to have limited data
Paraphrase identification: extract semantic similarity
Grammar check: capture syntactic and lexical features

Future Work:

Large benefits could be gained with:
More customization in interaction model to handle open-ended inputs
More state-of-the-art verification model such as LSTM