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PROJECT 4- Task 1

DESCRIPTION-

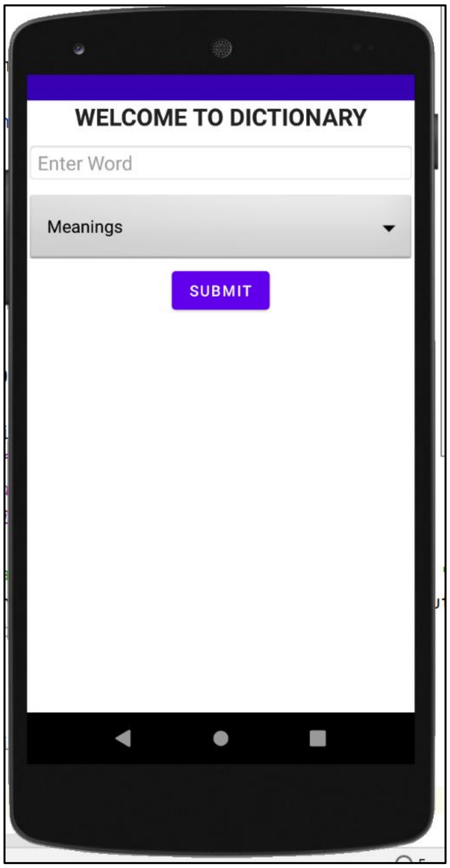
My application takes a word input from the user. It also asks user to enter functionality like: Meanings, Origin, Synonym, Antonym, Examples. Depending on user input the response is fetched from https://dictionaryapi.dev/ API and response is shown.

1. Implement native android application

   The name of my android appl project is **Project4Task1**
   NOTE: Since the name of my android application and web service is the same, for the purpose of submission, I have placed my entire android code in a folder named Project4Android.
   Folder structure Submitted:
   Project4Task1Writeup.pdf
   Project4Task2Writeup.pdf
   Project4Task1-> Task 1 web server code
   Project4Task2-> Task 2 web server code with logging functionality
   Project4Android-> Project4Task1 (Android studio code to be graded)

   1.1. Has 5 different kinds of views- TextView, EditTextView, DropDown View (Spinner), ButtonView, ListView. See content_main.xml for details of how they are incorporated in linear layout.

   Here is a screenshot of layout before data being fetched.



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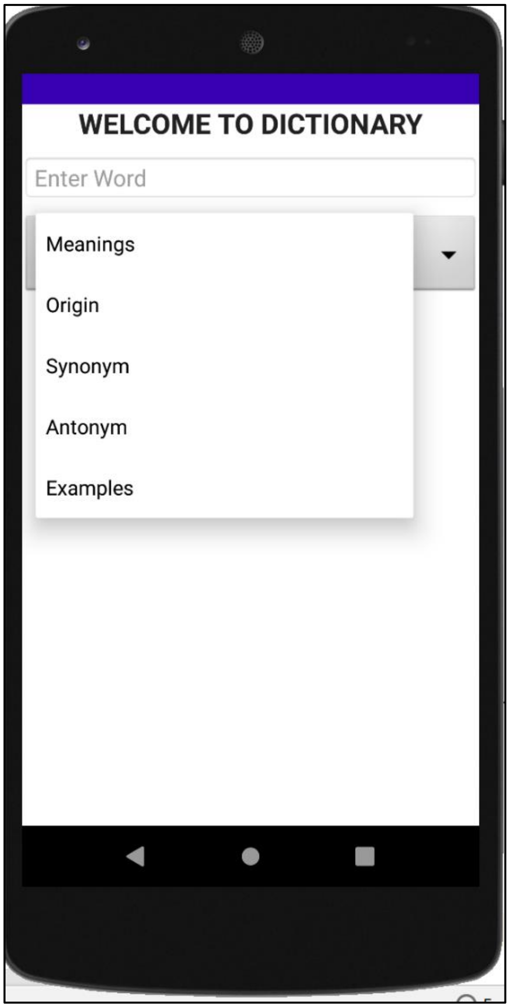

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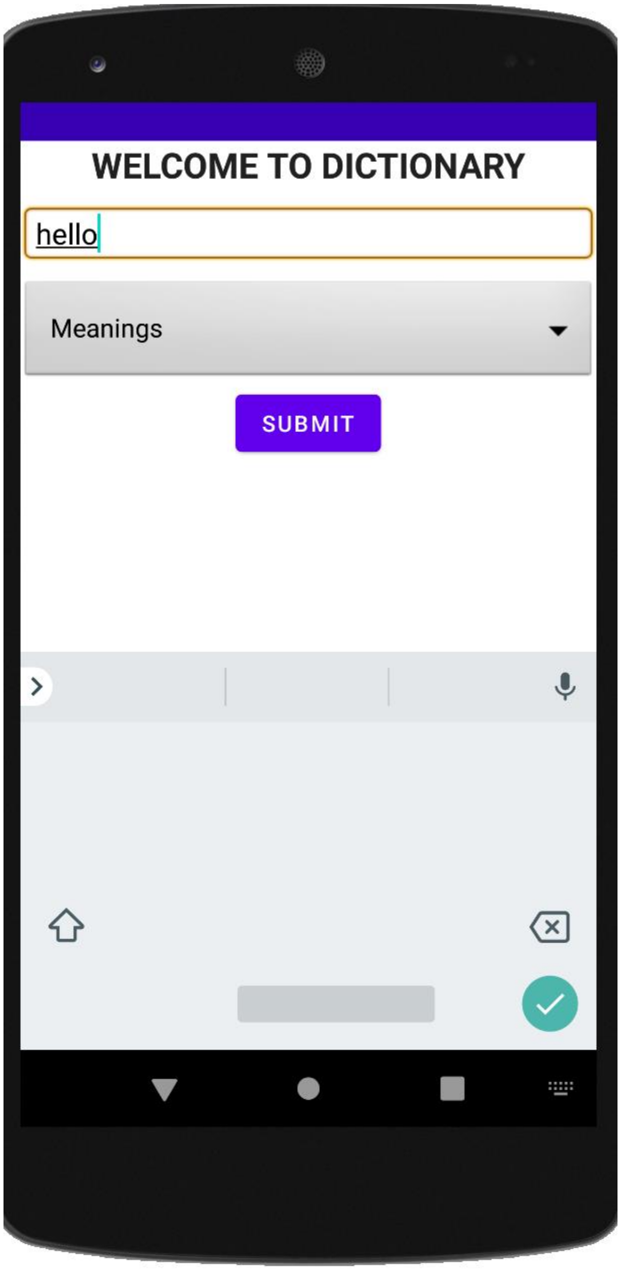
1.2. **Requires 2 input from user**- word and the functionality. The result will fetch the meanings of word hello.



WELCOME TO DICTIONARY

hello

Meanings

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1.3. Makes HTTP request to web service using HTTP GET

My application does HTTP GET request in SearchWord.java
The base URL for my task 1 web server is: “https://powerful-wave-47295.herokuapp.com/”

The HTTP Requests for various functionalities are-
“https://powerful-wave-47295.herokuapp.com/” + “getExamples?word=” + searchTerm
““https://powerful-wave-47295.herokuapp.com/” + “getMeanings?word=” + searchTerm
““https://powerful-wave-47295.herokuapp.com/” + “getOrigin?word=” + searchTerm
““https://powerful-wave-47295.herokuapp.com/” + “getSynonym?word=” + searchTerm
““https://powerful-wave-47295.herokuapp.com/” + “getAntonym?word=” + searchTerm

1.4. Receives and parses JSON response from web service

In my application all the requested functionality is served on different URL catering to that specific functionality, my response format is a JSON Array with all necessary values.
Sample JSON Response
Following are 2 sample responses for different URL URL:

https://powerful-wave-47295.herokuapp.com/getOrigin?word=Hello
Sending Origin for Hello as JSON Array: ["early 19th century: variant of earlier hollo; related to holla."]

https://powerful-wave-47295.herokuapp.com/getExamples?word=Hello
Sending Examples for Hello as JSON Array: ["hello there, Katie!","she was getting polite nods and hellos from people","I pressed the phone button and helloed"]

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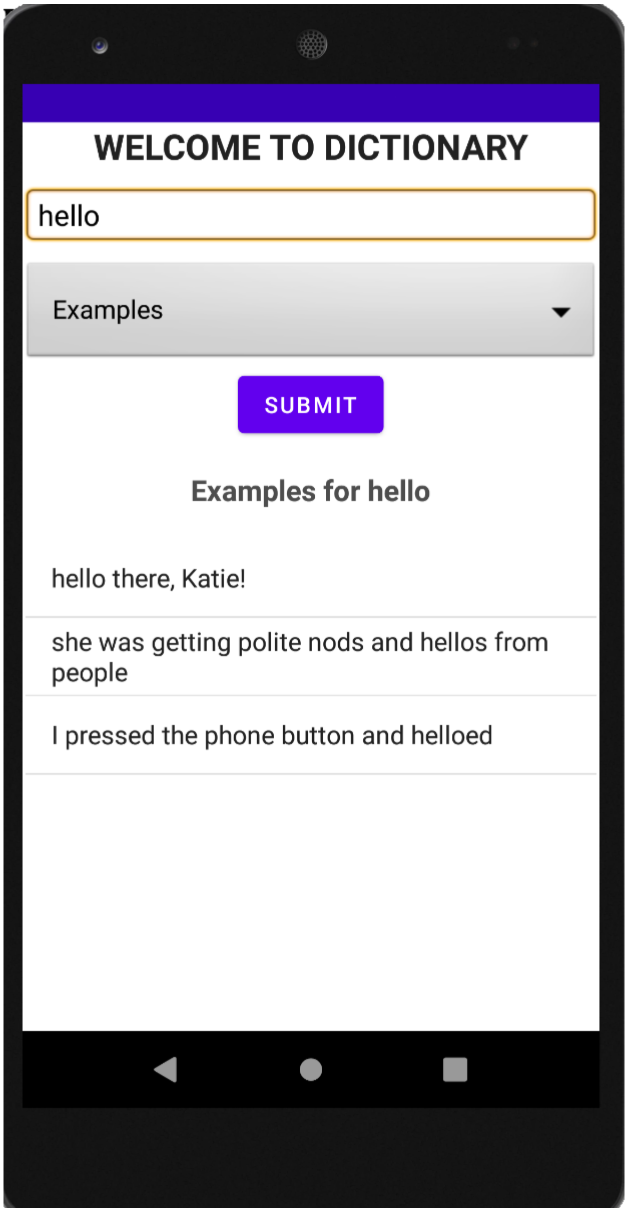
1.5. Displays information to the user



WELCOME TO DICTIONARY

hello

Examples for hello

hello there, Katie!

she was getting polite nods and hellos from people

I pressed the phone button and helloed

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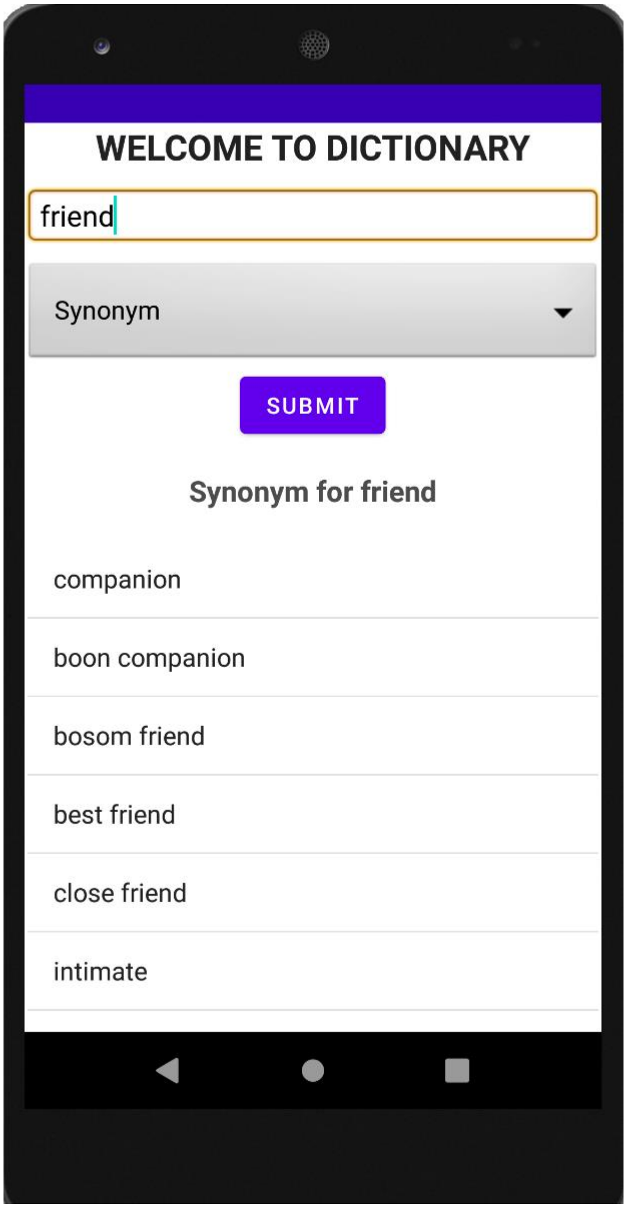
1.6. Is repeatable (User can use it without repeatedly restarting it)



WELCOME TO DICTIONARY

friend

Synonym

Synonym for friend

companion

boon companion

bosom friend

best friend

close friend

intimate

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2. Implement web application deployed to Heroku

The URL of my web service is: https://powerful-wave-47295.herokuapp.com/

Project directory name is Project4Task1

2.1. Using an HttpServlet to implement a simple (5 Paths) API

In my web app project:

Model: Dictionary.java

Controller: DictionaryServlet.java

2.2. Receives an HTTP request from the native Android application. DictionaryServlet.java receives the HTTP GET request with the argument "word". It passes this search word on to the model.

2.3. Executes business logic appropriate to your application

Dictionary.java makes an HTTP request to an external API to fetch information:

1) 5 different URL cater to various functionalities requested. Each URL will give a call internally to a 3rd party API: **“https://api.dictionaryapi.dev/api/v2/entries/en/” + word.**
   a. The 3rd party API only takes word as a parameter and gives all information about the word as a single JSON.
   b. Sample response:

[{“word”:”hello”,”phonetic”:”həˈləʊ”,”phonetics”:[{“text”:”həˈləʊ”,”audio”:”//ssl.gstatic.com/dictionary/static/sounds/20200429/hello--_gb_1.mp3”},{“text”:”hɛˈləʊ”}],”origin”:”early 19th century: variant of earlier hollo ; related to holla.”,”meanings”:[{“partOfSpeech”:”exclamation”,”definitions”:[{“definition”:”used as a greeting or to begin a phone conversation.”,”example”:”hello there, Katie!”,”synonyms”:[],”antonyms”:[]}]},{“partOfSpeech”:”noun”,”definitions”:[{“definition”:” an utterance of ‘hello’; a greeting.”,”example”:”she was getting polite nods and hellos from people”,”synonyms”:[],”antonyms”:[]}]},{“partOfSpeech”:”verb”,”definitions”:[{“definition”:” say or shout ‘hello’.”,”example”:”I pressed the phone button and helloed”,”synonyms”:[],”antonyms”:[]}]}]}]

2) Web service specific URL parses the json response and extracts the parts it needs to respond to the Android application.

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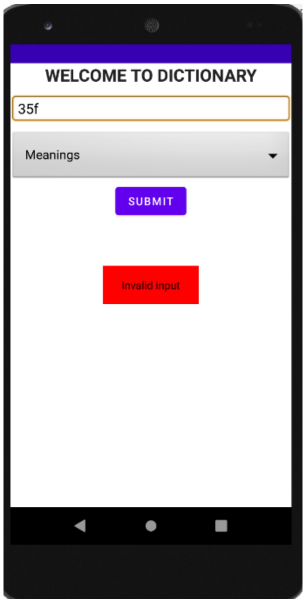
2.4. Replies to the Android application with an XML or JSON formatted response

Response for: https://powerful-wave-47295.herokuapp.com/getOrigin?word=Hello

["early 19th century: variant of earlier hollo; related to holla."]

3) All the given error conditions are handled-

- Non-Alphabet input

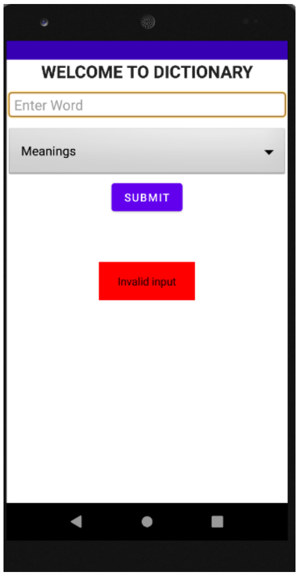


WELCOME TO DICTIONARY

35f

Invalid input

- Blank Input



WELCOME TO DICTIONARY

Invalid input

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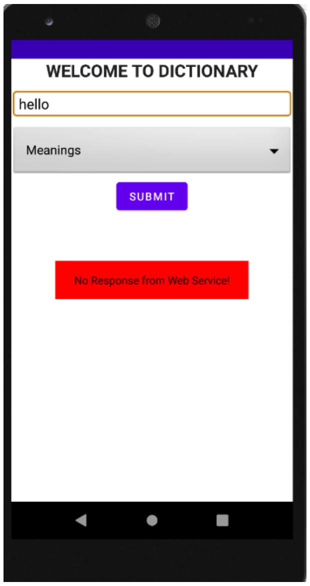
- Invalid server-side input (regardless of mobile app input validation)
- Mobile app network failure, unable to reach server
- Third-party API unavailable
- Third-party API invalid data

All the above conditions are handled separately in the code, but gives out a generic message as below on UI



hello

Meanings

No Response from Web Service!