Project 4 Task 1 – Wiki Search App
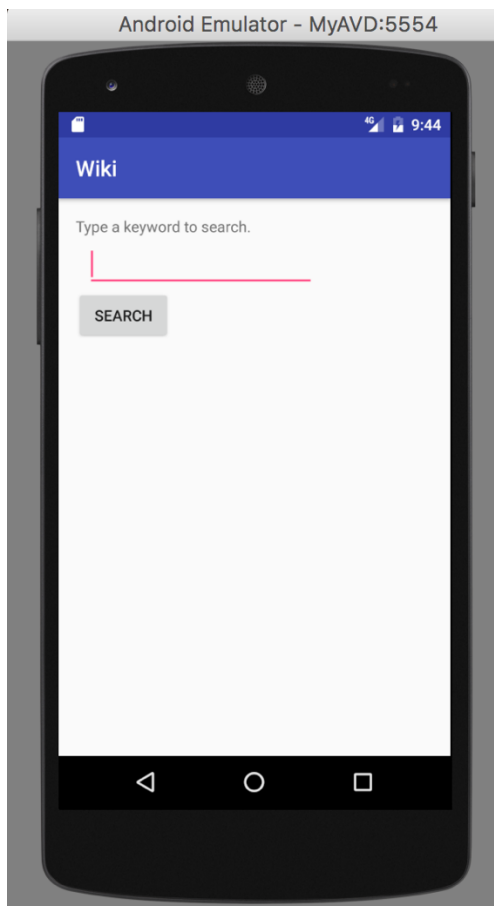**Shuang Xu**

Description:
My application takes a search string from the user, and uses it to fetch and display a random match document (title and snippet) from Wikipedia.

1. Implement a native Android application
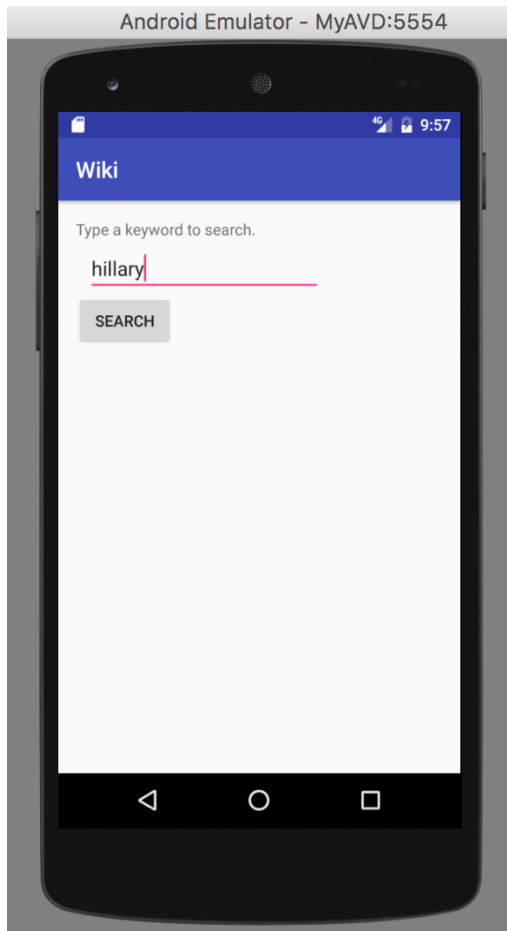The name of my native Android application project in Android Studio is: Project4Android.

1.1   My application uses TextView, EditText and Button. See activity_main.xml for details of how they are incorporated into the RelativeLayout.
Here is a screenshot of the layout before the document has been fetched.

1.2   Requires input from the user
Here is a screenshot of the user searching for a document of Hillary.

1.3 Makes an HTTP request.

My application does an HTTP GET request in GetResult.java. The HTTP request is:
"https://warm-island-14833.herokuapp.com/WikiServlet?search="+query
where query is the user's search term.

The search method makes this request of my web application, parses the returned JSON to find the document title and snipped, and returns the text.

1.4 Receives and parses an XML formatted reply from the web service.
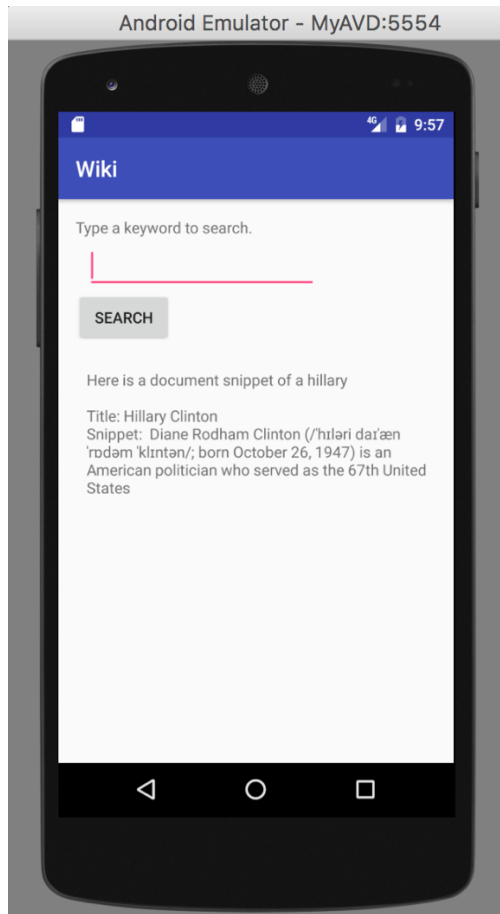
An example of the XML reply is:

```xml
▼<query>
   <searchinfo>president</searchinfo>
  ▼<results>
    ▼<doc>
        <title>President</title>
      ▼<snippet>
          officer of a corporation, see (corporate title). For other uses, see (disambiguation). A is the leader of a country or a
        </snippet>
      </doc>
    ▼<doc>
        <title>Vice president</title>
      ▼<snippet>
          here. For other uses, see VP (disambiguation). A vice (in British English: vice- for governments and director for businesses) is an officer
        </snippet>
      </doc>
    ▼<doc>
        <title>President of Poland</title>
      ▼<snippet>
          For a list of the of Poland, see List of heads of state of Poland. The of the Republic of Poland (Polish: Prezydent Rzeczypospolitej
        </snippet>
      </doc>
    ▼<doc>
        <title>President of Mexico</title>
      ▼<snippet>
          The of the United Mexican States (Spanish: Presidente de los Estados Unidos Mexicanos) is the head of state and government of Mexico. Under
        </snippet>
      </doc>
    ▼<doc>
        <title>President of Germany</title>
      ▼<snippet>
          The of Germany, officially the of the Federal Republic of Germany (German: Bundespräsident der Bundesrepublik Deutschland), is the
        </snippet>
      </doc>
    ▼<doc>
        <title>President of South Korea</title>
      ▼<snippet>
          The of the Republic of Korea (대한민국 대통령; 大韓民國大統領) is, according to the South Korean constitution, the chairman of the cabinet, the chief executive
        </snippet>
      </doc>
    ▼<doc>
        <title>President of Israel</title>
      ▼<snippet>
          31.76972; 35.21417 The of the State of Israel (Hebrew: נשיא הַמְדִינָה, Nesi HaMedina, lit. of the State) is the head of
        </snippet>
      </doc>
    ▼<doc>
        <title>President of Malta</title>
      ▼<snippet>
          The of Malta (Maltese: ta' Malta) is the constitutional head of state of Malta. The is appointed by a resolution of the
        </snippet>
      </doc>
    ▼<doc>
        <title>President of Bolivia</title>
      ▼<snippet>
          The of the Plurinational State of Bolivia (Spanish: Presidente del Estado Plurinacional de Bolivia) or of Bolivia (Spanish: Presidente
        </snippet>
      </doc>
    ▶<doc>...</doc>
    </results>
  </query>
```
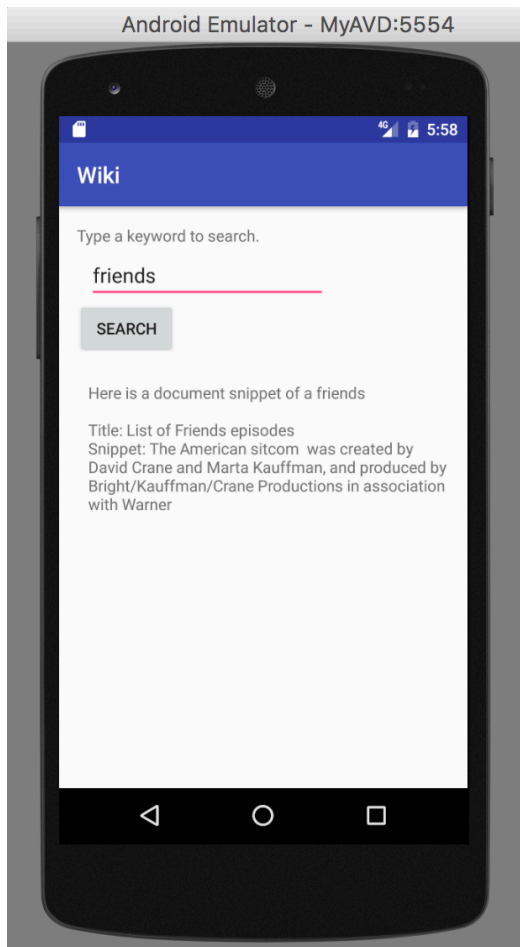
1.5 Displays new information to the user

Here is the screen shot after the document has been returned.

1.6 Is repeatable

The user can type in another search term and hit Submit. Here is an example of having typed in "friends".

2   Implement a web application, deployed to Heroku

The URL of my web service deployed to Heroku is warm-island-14833.herokuapp.com.

The project directory name is Project4Task1.

2.1 Using an HttpServlet to implement a simple API.

In my web app project:

Model: WikiModel.java

View: Use PrintWriter directly write the response.

Controller: WikiServlet.java

2.2 Received an HTTP request from the native Android application

WikiServlet.java received the HTTP GET request with the argument "search". It passes this search string on to the model.

2.3 Executes business logic

WikiModel.java makes an HTTP request to:

"https://en.wikipedia.org/w/api.php?action=query&list=search&srwhat=text&format=json&srsearch=" + query

where query is the user's search term.

It then parses the JSON response and extracts the parts it needs to respond to the Android application.

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

```xml
<query>
<searchinfo>hillary</searchinfo>
<results>
<doc>
<title>Hilary</title>
<snippet>
redirects here. For the politician and 2016 U.S. presidential nominee,
see Clinton. Hilary or may refer to: Hilary (name) or
</snippet>
</doc>
<doc>
<title>Edmund Hillary</title>
<snippet>
Percival Ed KG ONZ KBE (20 July 1919 — 11 January 2008) was a New
Zealand mountaineer, explorer, and philanthropist. On 29 May 1953, and
Nepalese
</snippet>
</doc>
<doc>
<title>Bibliography of Hillary Clinton</title>
<snippet>
This is a list of books and scholarly articles by and about Clinton,
as well as columns by her. Books are broken out by point of view.
Columns
</snippet>
</doc>
<doc>
<title>Hillary Clinton</title>
<snippet>
Diane Rodham Clinton (/ˈhɪləri daɪˈæn ˈrɒdəm ˈklɪntən/; born October
26, 1947) is an American politician who served as the 67th United
States
</snippet>
</doc>
<doc>
<title>Hillary Clinton presidential campaign, 2016</title>
<snippet>
presidential campaign of Clinton, the 67th United States Secretary of
State, was announced in a YouTube video, on April 12, 2015. Clinton,
the wife
</snippet>
</doc>
```

```
</snippet>
</doc>
<doc>
<title>Hillary Montes</title>
<snippet>
The Montes /ˈhɪləri ˈmɒntiːz/ (less officially, Mountains) are
mountains that reach 1.6 km (0.99 mi; 5,200 ft) above the surface of
the
</snippet>
</doc>
<doc>
<title>Hillary Clinton presidential campaign, 2008</title>
<snippet>
The 2008 presidential campaign of Clinton, then junior United States
Senator from New York, was announced on her website on January 20,
2007.
</snippet>
</doc>
<doc>
<title>Political positions of Hillary Clinton</title>
<snippet>
Clinton, the nominee of the Democratic Party for president of the
United States in 2016, has taken positions on political issues while
serving
</snippet>
</doc>
<doc>
<title>Hillary Doctrine</title>
<snippet>
Doctrine is a term used to describe the agenda of former United States
Secretary of State and present U.S. presidential candidate Clinton
</snippet>
</doc>
<doc>
<title>Hillary Clinton email controversy</title>
<snippet>
In March 2015, it became publicly known that Clinton, during her tenure
as United States Secretary of State, had used her family's private
email
</snippet>
</doc>
</results>
</query>
```