Project 4 – Poetry App

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Description:

Our application allows users to search for beautiful poems through keywords including author name, title, or lines. Users could even generate a random poem by giving a random number and getting back a different poem.

Here is how the application meets the task requirements

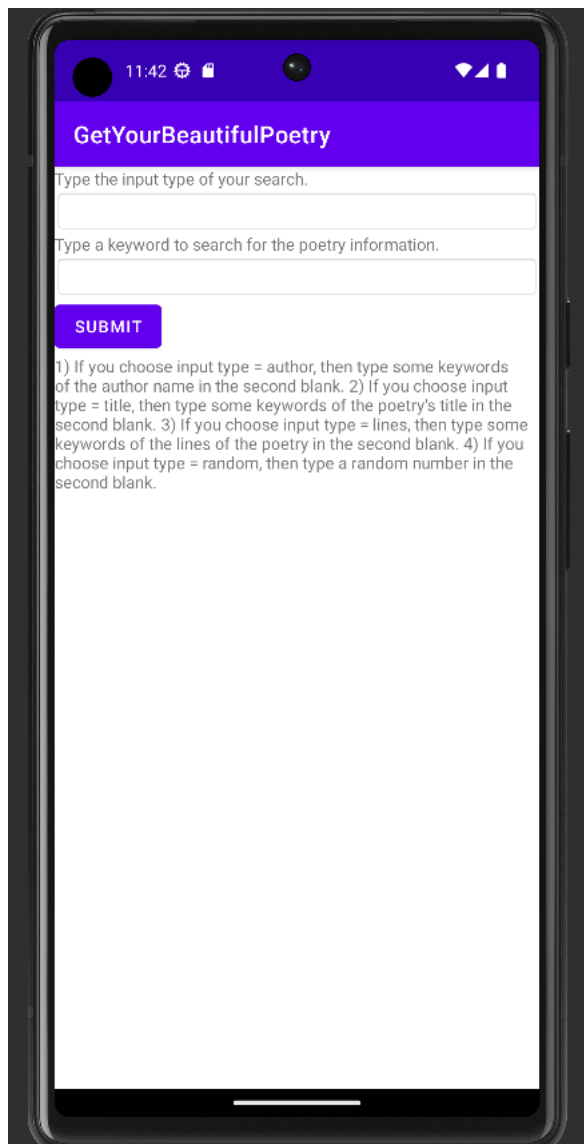**1. Implement a native Android application**

The name of my native Android application project in Android Studio is:

AndroidBeautifulPoetry

a. Has at least three different kinds of views in your Layout (TextView, EditText, ImageView, etc.)
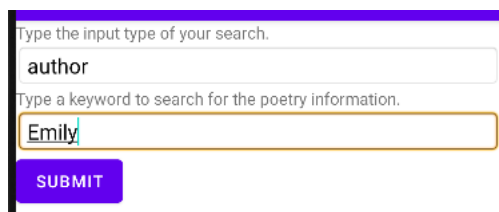
The application uses TextView, EditText, Button, and ImageView. See content_main.xml for details of how they are incorporated into the Linear Layout.

Here is a screenshot of the layout before the poem has been fetched.

b. Requires input from the user

Here is a screenshot of the user searching

c. Makes an HTTP request (using an appropriate HTTP method) to your web service

My application does an HTTP GET request in GetPoetry.java. The HTTP request is:

"http://192.168.1.154:8080/project4_webServelet-1.0-SNAPSHOT/getPoetry?choiceType="+searchType+"&searchName="+searchName

The "searchType" is the user's choice for the type of input he or she wants to search for, and "searchName" can be the keyword of an author name, title, lines, or a lucky number if the user choose "random" in the first blank.

The search method makes this request of my web application, parses the returned JSON to get target poem's author name, title, and lines.

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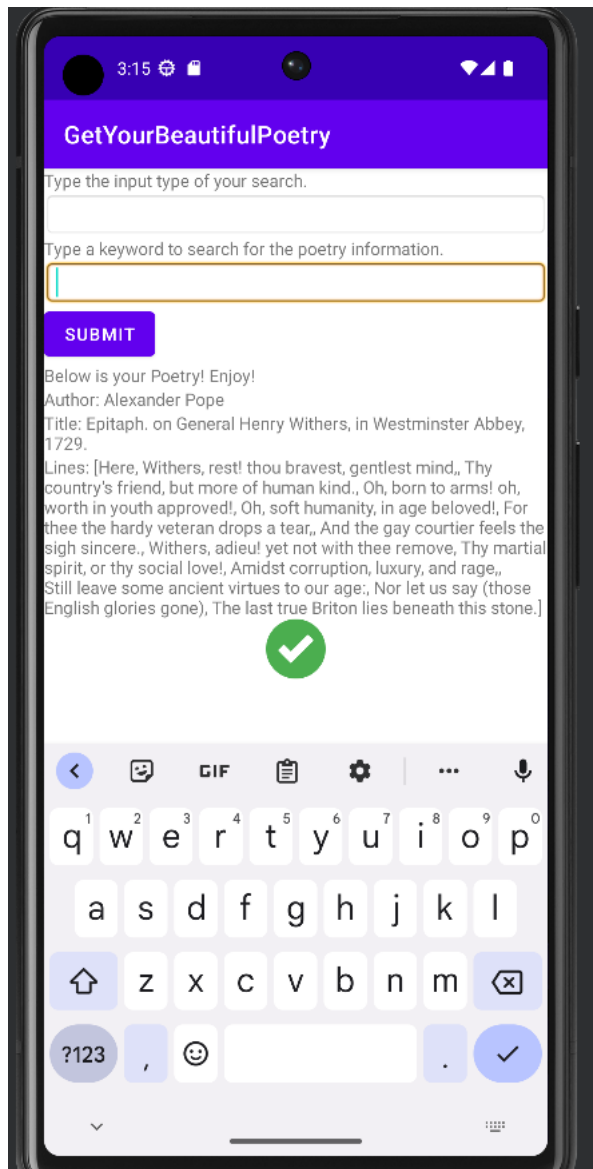
An example of the JSON reply is:

[{ "title": "Epitaph. on General Henry Withers, in Westminster Abbey, 1729.", "author": "Alexander Pope", "lines": ["Here, Withers, rest! thou bravest, gentlest mind,", "Thy country's friend, but more of human kind.", "Oh, born to arms! oh, worth in youth approved!", "Oh, soft humanity, in age beloved!", "For thee the hardy veteran drops a tear,", "And the gay courtier feels the sigh sincere.", "Withers, adieu! yet not with thee remove", "Thy martial spirit, or thy social love!", "Amidst corruption, luxury, and rage,", "Still leave some ancient virtues to our age:", "Nor let us say (those English glories gone)", "The last true Briton lies beneath this stone."], "linecount": "12" }, { "title": "Epitaph. on Mr Gay, in Westminster Abbey, 1732.", "author": "Alexander Pope", "lines": ["Of manners gentle, of affections mild;", "In wit, a man; simplicity, a child:", "With native humour tempering virtuous rage,", "Form'd to delight at once and lash the age:", "Above temptation in a low estate,", "And uncorrupted, even among the great:", "A safe companion, and an easy friend,", "Unblamed through life, lamented in thy end.", "These are thy honours! not that here thy bust", "Is mix'd with heroes, or with kings thy dust;", "But that the worthy and the good shall say,", "Striking their pensive bosoms--Here lies Gay."], "linecount": "12" }, { "title": "Epitaph. on Dr Francis Atterbury, Bishop of Rochester, Who Died in Exile at Paris, 1732.", "author": "Alexander Pope", "lines": ["SHE.", "", "Yes, we have lived--one pang, and then we part!", "May Heaven, dear father! now have all thy heart.", "Yet ah! how once we loved, remember still,", "Till you are dust like me.", "", "HE.", " Dear shade! I will:", "Then mix this dust with thine--O spotless ghost!", "O more than fortune, friends, or country lost!", "Is there on earth one care, one wish beside?", "Yes--Save my country, Heaven!", " --He said, and died."], "linecount": "12" }, { "title": "Sonnet 32 - The first time that the sun rose on thine oath", "author": "Elizabeth Barrett Browning", "lines": ["The

first time that the sun rose on thine oath", "To love me, I looked forward to the moon", "To slacken all those bonds which seemed too soon", "And quickly tied to make a lasting troth.", "Quick-loving hearts, I thought, may quickly loathe;", "And, looking on myself, I seemed not one", "For such man's love!—more like an out-of-tune", "Worn viol, a good singer would be wroth", "To spoil his song with, and which, snatched in haste,", "Is laid down at the first ill-sounding note.", "I did not wrong myself so, but I placed", "A wrong on thee. For perfect strains may float", "'Neath master-hands, from instruments defaced,—", "And great souls, at one stroke, may do and doat."], "linecount": "14" }, { "title": "Sonnet 21 - Say over again, and yet once over again", "author": "Elizabeth Barrett Browning", "lines": ["Say over again, and yet once over again,", "That thou dost love me. Though the word repeated", "Should seem 'a cuckoo-song,' as thou dost treat it,", "Remember, never to the hill or plain,", "Valley and wood, without her cuckoo-strain", "Comes the fresh Spring in all her green completed.", "Beloved, I, amid the darkness greeted", "By a doubtful spirit-voice, in that doubt's pain", "Cry, 'Speak once more—thou lovest! 'Who can fear", "Too many stars, though each in heaven shall roll,", "Too many flowers, though each shall crown the year?", "Say thou dost love me, love me, love me—toll", "The silver iterance!—only minding, Dear,", "To love me also in silence with thy soul."], "linecount": "14" }, { "title": "Sonnet 23 - Is it indeed so? If I lay here dead", "author": "Elizabeth Barrett Browning", "lines": ["Is it indeed so? If I lay here dead,", "Wouldst thou miss any life in losing mine?", "And would the sun for thee more coldly shine", "Because of grave-damps falling round my head?", "I marvelled, my Beloved, when I read", "Thy thought so in the letter. I am thine—", "But . . . so much to thee? Can I pour thy wine", "While my hands tremble ? Then my soul, instead", "Of dreams of death, resumes life's lower range.", "Then, love me, Love! look on me—breathe on me!", "As brighter ladies do not count it strange,", "For love, to give up acres and degree,", "I yield the grave for thy sake, and exchange", "My near sweet view of Heaven, for earth with thee!"], "linecount": "14" }
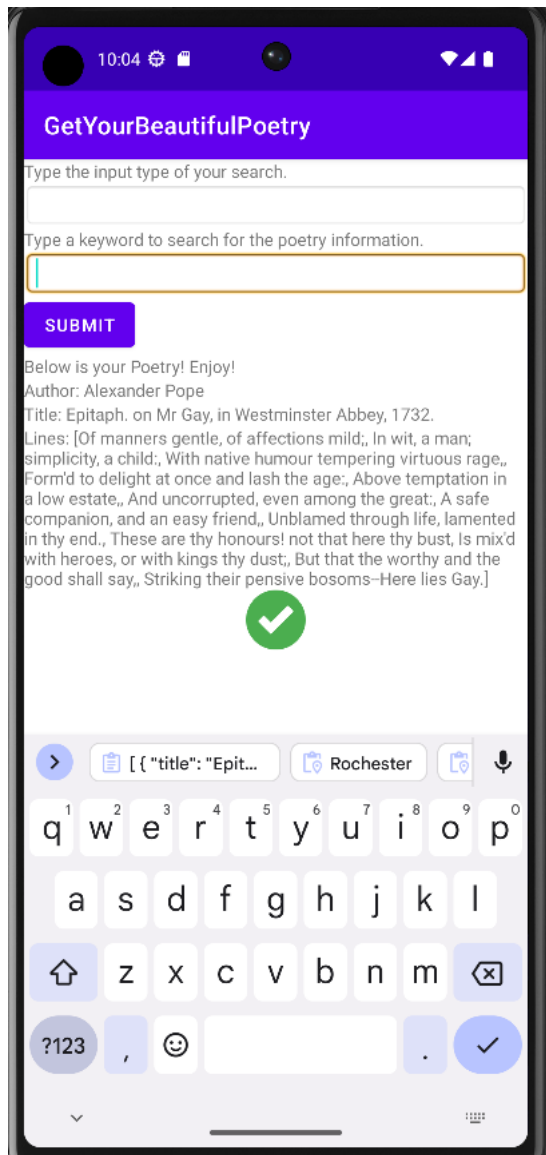
e. Displays new information to the user

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

f. Is repeatable (I.e. the user can repeatedly reuse the application without restarting it.)

The user can type in another searchType as well as searchName and hit Submit. Here is an example of having typed in "random" with the user's lucky number "3" in the second column.

2. Implement a web application, deployed to Heroku

The URL of my web service deployed to Heroku is:
https://murmuring-reaches-71576.herokuapp.com
The project directory name is project4Task2.
a. Using an HttpServlet to implement a simple (can be a single path) API

In my web app project:

Model: MongoModel.java, PoetModel.java

View: result.jsp

Controller: MongoServlet.java, PoetServlet.java

b. Receives an HTTP request from the native Android application

PoetServlet.java receives the HTTP GET request with the argument "searchType" and "searchName". It passes this search string on to the model.

c. Executes business logic appropriate to your application

PoetModel.java makes an HTTP request to: https://poetrydb.org/

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

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

The PoetServlet select the first poetry information in the response, re-organize it, and send to the mobile application in a simple JSON format in my own design:

{"author":"Alexander Pope","title":"Epitaph. on General Henry Withers, in Westminster Abbey, 1729.","lines":["Here, Withers, rest! thou bravest, gentlest mind,","Thy country\u0027s friend, but more of human kind.","Oh, born to arms! oh, worth in youth approved!","Oh, soft humanity, in age beloved!","For thee the hardy veteran drops a tear,","And the gay courtier feels the sigh sincere.","Withers, adieu! yet not with thee remove","Thy martial spirit, or thy social love!","Amidst corruption, luxury, and rage,","Still leave some ancient virtues to our age:","Nor let us say (those English glories gone)","The last true Briton lies beneath this stone."]}

3. Log useful information - Itemize what information you log and why you chose it.

   Collection: API Request

   ID, Method, Date, Data.

   Store all the user request information such as the method that the user used and the request information the user provided. With the information, we can analysis which method is popular and which key words are often used.

Collection: API Response

ID, RequestID, Date, Data.

We can use RequestID to find the request information in the APIRequest collection. Moreover, we use the Date to analysis the response time.

4. Store the log information in a database - Give your Atlas connection string with the three shards

```java
// url for the cloud mongoDB
String uri =
"mongodb://chunchusweih2:cw20210830@ac-toar1vl-shard-00-00.tdatapo.mongodb.net:27017,ac-toar1vl-shard-00-01.tdatapo.mongodb.net:27017,ac-toar1vl-shard-00-02.tdatapo.mongodb.net:27017/Task1?w=majority&retryWrites=true&tls=true&authMechanism=SCRAM-SHA-1";
//connect to the mongoDB
MongoClient mongoClient = MongoClients.create(uri);
MongoCollection<Document> coll;

/**
 * go to the Database Task2 and collection APIResponse
 */
public ResponseDao() {
    this.coll =
mongoClient.getDatabase("Task2").getCollection("APIResponse");
}
```

```java
2 usages
public class ResponseDao {
    // url for the cloud mongoDB
    1 usage
    String uri = "mongodb://chunchusweih2:cw20210830@ac-toar1vl-shard-00-00.tdatapo.mongodb.net:27017,ac-toar1vl-shard-00
    //connect to the mongoDB
    1 usage
    MongoClient mongoClient = MongoClients.create(uri);
    3 usages
    MongoCollection<Document> coll;

    /**
     * go to the Database Task2 and collection APIResponse
     */
    1 usage
    public ResponseDao() { this.coll = mongoClient.getDatabase( s: "Task2").getCollection( s: "APIResponse"); }

    /**
     * Insert data to the mongoDB
     * @param p the data information
```

5. Display operations analytics and full logs on a web-based dashboard - Provide a screen shot.

Poetry API Analysis

The most popular method: Author: 4 times

Average response time: 39804 minutes

Total number of request: 5

Log for Request

Request ID	Method	Request Time	Request Data
63764520ad08f65bf294eff9	Author	2022-11-16 01:20:20	Blank White
637647eaad08f65bf294effa	Line	2022-11-16 03:20:20	Today we are happy
6377f3ffd5ba983fe5c8e5de	Author	2022-11-18 16:07:10.972	Daniel Wan
637827873c2f641e7b8c22bb	Author	2022-11-18 19:47:03.51	Daniel Wan
637827883c2f641e7b8c22bd	Author	2022-11-18 19:47:04.248	Daniel Wan

Log for Response

Response ID	Request ID	Response Time	Response Data
6378286d11b3b10bc5e2358d	63764520ad08f65bf294eff9	2022-11-18 22:23:24	[{ "title": "The Moon Maiden's Song", "author": "Ernest Dowson", "lines": ["Sleep! Cast thy canopy", " Over this sleeper's brain,", "Dim grow his memory,", " When he wake again.", "", "Love stays a summer night,", " Till lights of morning come;", "Then takes her winged flight", " Back to her starry home.", "", "Sleep! Yet thy days are mine;", " Love's seal is over thee:", "Far though my ways from thine,", " Dim though thy memory.", "", "Love stays a summer night,", " Till lights of morning come;", "Then takes her winged flight", " Back to her starry home."], "linecount": 16 }]
6378295e11b3b10bc5e2358e	637647eaad08f65bf294effa	2022-11-18 22:54:24	[{ "title": "The Moon Maiden's Song", "author": "Ernest Dowson", "lines": ["Sleep! Cast thy canopy", " Over this sleeper's brain,", "Dim grow his memory,", " When he wake again.", "", "Love stays a summer night,", " Till lights of morning come;", "Then takes her winged flight", " Back to her starry home.", "", "Sleep! Yet thy days are mine;", " Love's seal is over thee:", "Far though my ways from thine,", " Dim though thy memory.", "", "Love stays a summer night,", " Till lights of morning come;", "Then takes her winged flight", " Back to her starry home."], "linecount": 16 }]