

# Project 4 – HolidayApp

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## Description:

My application allows the user to check whether a specific date is a public holiday in a given country by querying the Calendarific API. The native Android app collects user input and interacts with a web service hosted in the cloud, which fetches and processes the holiday data. A dashboard is also included to log requests and display analytics from the MongoDB cloud database.

## 1. Native Android Application

Project name in Android Studio: HolidayApp

### a. Layout with 3+ Views

My app uses the following UI components:

- EditText for date input
- EditText for country input
- Button to trigger the check
- TextView to display results

```

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:padding="24dp"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <EditText
        android:id="@+id/editCountry"
        android:hint="Enter Country Code (e.g. US)"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:inputType="text" />

    <EditText
        android:id="@+id/editDate"
        android:hint="Enter Date (YYYY-MM-DD)"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:inputType="date" />

    <Button
        android:id="@+id/btnCheck"
        android:text="Check Holiday"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp" />

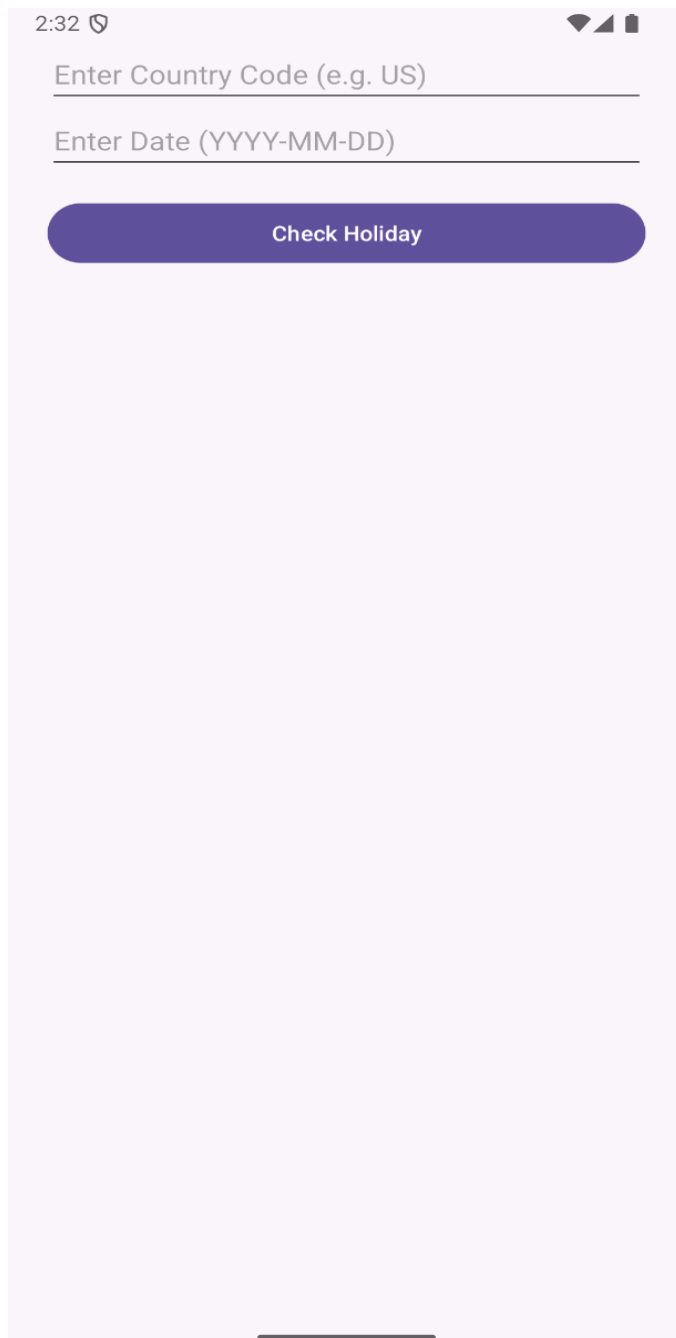
    <TextView
        android:id="@+id/textResult"
        android:text=""
        android:textSize="18sp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="24dp"
        android:textColor="#000000" />

</LinearLayout>

```

## b. Requires input from the user

The app requires the user to enter a **country code** (e.g., US) and a **date** (e.g., 2025-12-25).



### **c. Makes an HTTP GET request to the web service**

The app uses an `ExecutorService` to send a background HTTP GET request to:

`http://<your-cloud-url>/checkHoliday?date=YYYY-MM-DD&country=XX`

This is implemented in `MainActivity.java`.

#### **d. Receives and parses JSON from the web service**

Sample JSON reply:

```
{  
  "date": "2025-12-25",  
  "country": "US",  
  "isHoliday": true  
}
```

The response is parsed using `org.json.JSONObject`.

#### **e. Displays new information to the user**

Result is shown in a `TextView`:

- "🎉 It's a holiday!" or
- "📅 It's a regular day."

2:31



US

2025-12-25

Check Holiday



It's a holiday!

2:31



US

2025-01-05

Check Holiday



It's a regular day.

## **f. Is repeatable**

The user can input different country-date combinations and check repeatedly without restarting the app.

## **2. Web Application**

**Web app name:** HolidayCalendar

**Deployment:** GitHub Codespaces (Tomcat 11 + JDK 21)

**WAR file name:** ROOT.war

### **a. Servlet-based API**

- `HolidayCheckServlet.java`: Receives requests, calls Calendarific API, and returns a simplified JSON response.
- `MongoLogger.java`: Logs details to MongoDB
- `LogViewerServlet.java`: Displays logs and analytics via a web dashboard

### **b. Receives requests from Android**

`HolidayCheckServlet` handles GET requests from the Android app with parameters `date` and `country`.

### **c. Executes business logic**

Fetches holiday data from:

<https://calendarific.com/api/v2/holidays>

- Extracts whether the date is a holiday.
- Logs the request to MongoDB Atlas.

#### **d. Responds with JSON**

Sample custom JSON reply from the servlet:

```
{  
  "date": "2025-12-25",  
  "country": "US",  
  "isHoliday": true  
}
```

### **4. Logging Useful Information**

The following **6 fields** are logged per request:

1. Country code
2. Date
3. Whether it is a holiday
4. Device type (hardcoded as "Android Emulator" for now)
5. Timestamp of request
6. API response status or message

These fields were chosen to support future analytics and debugging.



## 5. MongoDB Database

**Database provider:** MongoDB Atlas

**Connection string:**

```
mongodb+srv://Priyal07:<dbpassword>@cluster0.jksc2gm.mongodb.net/?retr
yWrites=true&w=majority&appName=Cluster0
```

Three shard servers:

- cluster0-shard-00-00.jksc2gm.mongodb.net:27017
- cluster0-shard-00-01.jksc2gm.mongodb.net:27017
- cluster0-shard-00-02.jksc2gm.mongodb.net:27017

Atlas

Priyal's Org ... ⚙️ Access Manager ▼ Billing

Project 0 ▾ : Data Services Charts

Overview

DATABASE

Clusters

SERVICES

Atlas Search

Stream Processing

Triggers

Migration

Data Federation

SECURITY

Quickstart

Backup

Database Access

Network Access

Advanced

Goto

PRİYAL'S ORG - 2025-04-09 > PROJECT 0 > DATABASES

ClusterO

VERSION  
8.0.6

REGION  
AWS Frankfurt (eu-central-1)

OverviewReal TimeMetricsCollectionsAtlas SearchQuery InsightsPerformance AdvisorOnline ArchiveCmd Line Tools

DATABASES: 2 COLLECTIONS: 7

+ Create Database

Q Search Namespaces

HolidayDB

- logs
  - sample\_mflix

HolidayDB.logs

STORAGE SIZE: 36KB LOGICAL DATA SIZE: 3.76KB TOTAL DOCUMENTS: 15 INDEXES TOTAL SIZE: 36KB

FindIndexesSchema Anti-Patterns ⓘAggregationSearch Indexes

Generate queries from natural language in Compass ⓘ

INSERT DOCUMENT

Filter ⓘType a query: { field: 'value' }ResetApplyOptions ▶

QUERY RESULTS: 1-15 OF 15

```
_id: ObjectId('67f94d7b9236f46673eced45')
timestamp: "2025-04-11T13:12:27.462247"
country: "US"
date: "2025-12-25"
isHoliday: "Yes"
```

```
_id: ObjectId('67f94ea73b9dff4792ba8f03')
timestamp: "2025-04-11T13:17:27.779794"
country: "US"
date: "2025-12-25"
isHoliday: "Yes"
```

## 6. Dashboard – Logs + Analytics

URL:

`http://localhost:8080/HolidayCalendar_war_exploded/logs`

←
→
🔄
🔍 localhost:8080/HolidayCalendar\_war\_exploded/logs
☆
📄
📌
👤
Finish update ⚙️

## Holiday Check Log Dashboard

**Analytics**

- Total Checks: 11
- Total Holidays Found: 10
- Top 3 Countries Searched:
  - US: 11 searches

**All Logs**

Timestamp	Country	Date	Is Holiday	IP	Device Info
2025-04-11T13:12:27.462247	US	2025-12-25	Yes	null	null
2025-04-11T13:17:27.779794	US	2025-12-25	Yes	0:0:0:0:0:0:1	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/134.0.0.0 Safari/537.36
2025-04-11T13:17:43.602712	US	2025-07-04	Yes	0:0:0:0:0:0:1	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/134.0.0.0 Safari/537.36
2025-04-11T13:17:46.690089	US	2025-07-04	Yes	0:0:0:0:0:0:1	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/134.0.0.0 Safari/537.36
2025-04-11T13:17:52.682219	US	2025-07-04	Yes	0:0:0:0:0:0:1	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/134.0.0.0 Safari/537.36
2025-04-11T13:18:00.940246	US	2025-07-25	Yes	0:0:0:0:0:0:1	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/134.0.0.0 Safari/537.36
2025-04-11T13:18:11.969426	US	2025-01-05	No	0:0:0:0:0:0:1	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/134.0.0.0 Safari/537.36
2025-04-11T13:34:05.024491	US	2025-12-25	Yes	127.0.0.1	Dalvik/2.1.0 (Linux; U; Android 16; sdk_gphone64_arm64 Build/BP22.250221.010)
2025-04-11T13:40:25.709695	US	2025-07-04	Yes	0:0:0:0:0:0:1	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/134.0.0.0 Safari/537.36
2025-04-11T13:40:30.086759	US	2025-07-04	Yes	0:0:0:0:0:0:1	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/134.0.0.0 Safari/537.36
2025-04-11T18:11:53.462585544	US	2025-12-25	Yes	172.17.0.1	Dalvik/2.1.0 (Linux; U; Android 16; sdk_gphone64_arm64 Build/BP22.250221.010)