TEAM BONELESS ICE: Ayham Alnasser, Clement Chan, Kiran Vuksanaj, Tiffany Cao

SoftDev1 pd1
P01 -- Ocean Getaways

PROGRAM OVERVIEW:

This website is essentially a helping guide to travelers going to other cities or countries globally. There is a single search form, allowing the users to input a city and country, which will be stored in a session. If the given city and country doesn't exist, the website will throw an error message. Using the IP Location API, we can obtain the user's location, which we can then use to compute the currency exchange, using the Currency Exchange API. The website will also show information regarding the weather and air quality of the city given using the Dark Sky and Air Visual APIs, respectively. Finally, using NASA and On Splash, users will be provided with images and a map of the city and/or country they gave. As an extra feature, there will also be a small section from the Wikipedia API about the city or country given.

PROGRAM COMPONENTS AND APIs:

APIs USED:

Dark Sky (Clement):

- https://api.darksky.net/forecast/OUR_KEY/[Latitude],[Longitude]
- This API gives us the weather forecast for a certain location using coordinates
- Reports current weather as well as forecasts daily for the next week, hourly for the next two days, and minutely for the next hour (only precipitation data).
- The daily and hourly forecasts would be useful information for people to plan their trips.
- We will store weather forecast images in a weather database, so that each forecast will have a complementary image to go with it. For example, a forecast of a clear day will have an image of a clear sky next to it.

Air Visual (Clement):

- http://api.airvisual.com/v2/nearest_station?lat=[LAT]&lon=[LONG]&key=[YOUR_API_KEY]
- http://api.airvisual.com/v2/city?city=[CITY]&state=[STATE]&country=[COUNTRY]&key=[YOUR_API_KEY]

- This reports the weather quality/pollution for a given city, or the data from the closest weather station to given coordinates
- The information will be used in addition with the weather data retrieved from the Dark Sky API

NASA (Ayham):

- Space n shit
- https://api.nasa.gov/planetary/earth/imagery?lon=FROM_IP_LOCATION&lat=SAMEdate=[TODAY]&cloud_score=True&api_key=OUR_KEY
- This is a cute little low quality image of the location we're aiming for, it'll give the user a general idea of the current view of the city
    - If it's Beijing they can look at the smog coverage, if they're so inclined
- IS SUBJECT TO BEING UPDATED BY A HIGHER QUALITY IMAGE SOURCE

Unsplash (Ayham):

- https://api.unsplash.com/search/photos?page=1&query=[CITY NAME]
- We use unsplash for the images that are associated with the searched location, Big Ben for London, Empire State Building for NYC etc.
- These photos are then immediately yoinked into the SQL DB where it is preserved so that we can minimize calls to this API
- The JSON output is fairly dense, but we can go straight to the largest image and save it in accordance to the length and width values given in the JSON

IP Location (Kiran):

- http://ip-api.com/json/149.89.151.100?fields=status,message,lat,lon,currency,counry,query
- Using this API url, with no key necessary, information about the approximate location of an IP address can be obtained, alongside a wide variety of information about the location (including the currency code)
- When a user accesses the site, their IP address can be recorded and this API may be used to determine their current location, and as an extension what currency should be displayed on the website (see currency exchange API)
- **Note:** In development builds of Flask apps (i.e. everything we have used so far), the IP address returned is 127.0.0.1; because of this, location **cannot** be determined by IP address until sites are hosted.
- The symbol of the local currency can be retrieved from the JSON object by using data['currency']

Wikipedia (Kiran):

- https://en.wikipedia.org/w/api.php?format=json&action=parse&page=London
- This API can be employed to get information about a given topic via its Wikipedia page.
- It can be used in our project to display a 'blurb' of information about a city once searched, coming from the first paragraph summarizing the Wikipedia article
- It should be noted that this extraction will likely require parsing of HTML, which is the format used to store the content of the Wikipedia page itself (even when requested in a JSON request).

Currency Exchange (Tiffany):

- https://api.exchangerate-api.com/v4/latest/USD
- Using the above API url, we can obtain the rates of currency exchange between USD and 50 other currencies in a ratio.
- The IP Location API has a field that gives the local currency symbol based on the location. Using this, we can easily know which currencies a country uses, which we could possibly store in a database if necessary (it might be helpful to store the information so that we don't have to call the API every single time). Then we can find the rates by using data['rates']['currencyID'] with data being the JSON page.
- The exchange rate can be stored in a session but not in the database because the rate is constantly being updated and it would be impractical to update the database continuously when it might not be accurate.

Extra Features (All):

- A feature that allows the user to see the latest news from the country or city they searched for. This would theoretically be made possible with the GNews API, though there might be some extra work involved since the API apparently requires JavaScript. If we have time, we would implement this, and it would either be in a new HTML page or displayed along with the information page.
- In addition to the currency exchange information, we can also implement an in-page calculator that lets the user input an amount of money in their base currency (using a dropdown menu to choose their base), and converting that into its monetary equivalent in the currency of the location provided.

DATABASES:

Weather Images Database:
(**Weather TEXT, url TEXT**)

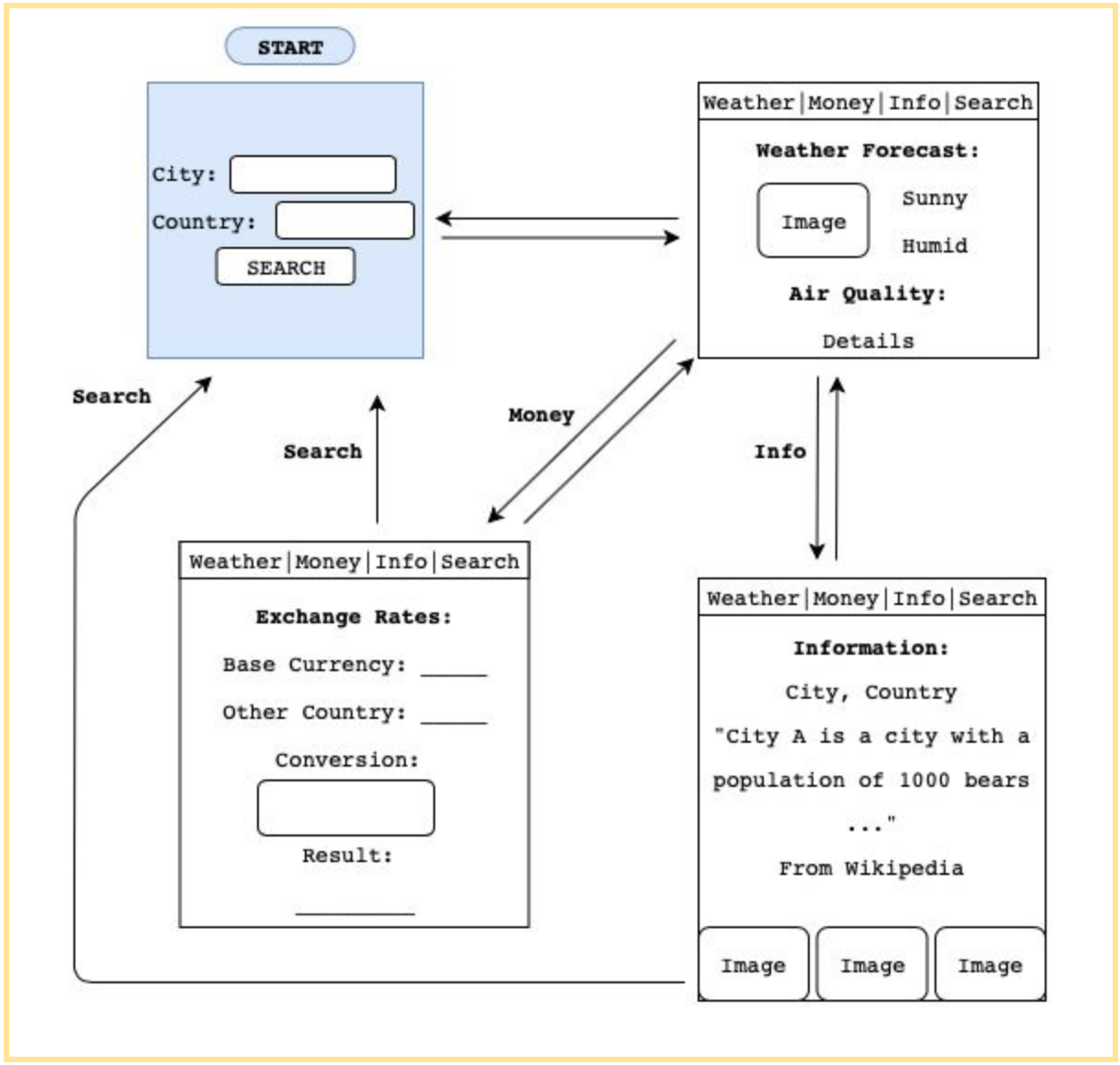
Weather	**url**
Sunny	https/samplimage.com/sunny-icon.png
Cloudy	https/samplimage.com/cloudy-icon.png
Clear	https/samplimage.com/clear-icon.png

Cached Place Info Database:
(**Country TEXT, City TEXT, img TEXT, currency TEXT, info TEXT, last_cached TIMESTAMP**)

Country	City	img	currency	info	last_cached
USA	New York	https://assets.simpleviewinc.com/simpleview/image/upload/c_fill,h_474,q_75,w_640/v1/clients/newyorkstate/5232359e_e163_475c_abe3_0f20af112a8c_ae020bfc-a771-4564-87b7-479fbe55735d.jpg	USD	The **City of New York**, usually referred to as either **New York City** (**NYC**) or simply **New York** (**NY**), is the most populous city in the United States...	2019-11-17 07:25
Britain	London	https://cdn.londonandpartners.com/visit/general-london/areas/river/76709-640x36	EUR	**London** is the capital and largest city of England and the United Kingdom. Standing on the	2019-11-17 23:05

		0-houses-of-parliament-and-london-eye-on-thames-from-above-640.jpg		River Thames in the south-east of England, at the head of its 50-mile (80 km) estuary leading to the North Sea, London has been a major settlement for two...	
France	Paris	https://static.independent.co.uk/s3fs-public/thumbnails/image/2019/08/07/08/paris.jpg?w968	EUR	**Paris** is the capital and most populous city of France, with an area of 105 square kilometres (41 square miles) and an official estimated population of 2,140,526 residents as of 1 January 2019. Since the 17th century, Paris has been one of Europe's major centres of finance, diplomacy, commerce, fashion, science, and the arts.	2019-11-17 23:06

SITE MAP:


START
City:
Country:
SEARCH
Weather|Money|Info|Search
Weather Forecast:
Image
Sunny
Humid
Air Quality:
Details
Search
Search
Money
Info
Weather|Money|Info|Search
Exchange Rates:
Base Currency: _____
Other Country: _____
Conversion:
Result:
_____
Weather|Money|Info|Search
Information:
City, Country
"City A is a city with a population of 1000 bears ..."
From Wikipedia
Image
Image
Image

COMPONENT MAP: