Projects: Scope & MVP

Project Scoping and Your MVP

Goals

- Prepare you for scoping your project
- Talk about what an MVP is

Scoping

Scoping software projects is notoriously difficult

Why Scoping is Hard

Because estimating how long something will take is hard, *especially* in software.

Fred Brooks writes about *the tendency towards irreducible number of errors*:

Fixing bugs makes more bugs.

It's difficult to anticipate when and how and if this will happen, especially when you're just starting out.

What You Can Do to Help Yourself

- Have a clear idea and a clear set of features
  - Research these features to get sense of their difficulty
- Ask for help!
  - We've seen lots of projects and know difficulties of some technologies
  - Trust us
- Find data that does what you need

MVP

Your Minimum Viable Product

Think of a project that can be done in **2 weeks**.

This leaves you time to:

- pick next round of features based on what you learned
- do more of something you enjoyed in sprint 1
- write tests

Planning Features

- A general idea is a good place to start
  - An app to find good doctors based on location and needs
  - An app to show interesting data about baby names, and add to the database
  - An app to keep track of fitness and help users meet their goals

Questions to get you thinking:

- What is the **user flow**?
- Where does the user go **first** in the app? Where do they go **second**?
- What does the user **see**? How do they **interact** with your app?
- Are there **forms** the user fills out? When?
- Which data needs to be **saved** in a database?
- Which data is **provided** to the users?
- If you want to use a particular API, **read the documentation** to see what data you'll be able to access, and how.
  - If you want to build a search for restaurants in a particular neighborhood, confirm that the API lets you search restaurants by neighborhood/zipcode.
- If you're going to use a dataset, **look at the data** to understand what features you can build around it.
- If there is a library you want to use, **read the documentation** to understand the functionality it provides.

Example: Bird Watching Project

An example:

I want to build a birdwatching site.

It needs to capture 3D full-color hi-res models of any bird within a 100 yard radius using a button camera attached to your lapel which then sends the model via radio wave to my database, but since the technology is not quite there yet, I will consider what I can build in two weeks.

I have a dataset that lists all birds. I'd like to put some or all of that dataset into a database, search that dataset on a webserver, and be able to save a list of birds-I've-seen. As a nice-to-have, I'd like other users to be able to log in and save their own birds-they've-seen, and maybe hook up some audio of bird calls if I can find a good source, but if I don't get to those, that's fine.

- Main Features (MVP)
  - Bird dataset stored in DB
  - Webapp to view list of birds and individual birds
  - Search for birds by name
  - Save a list of birds I've seen
- Nice-To-Haves
  - User login (for multiple users)
  - Audio of bird calls

Data and Your Project

- Knowing what data is available will help you decide on whether a project or a feature is feasible
- Identifying your sources for data will be part of your MVP planning
- You don't necessarily have to complete the setup directions for an API to understand the type of data it provides.
- You might create your own dataset!

Explore Your API Options

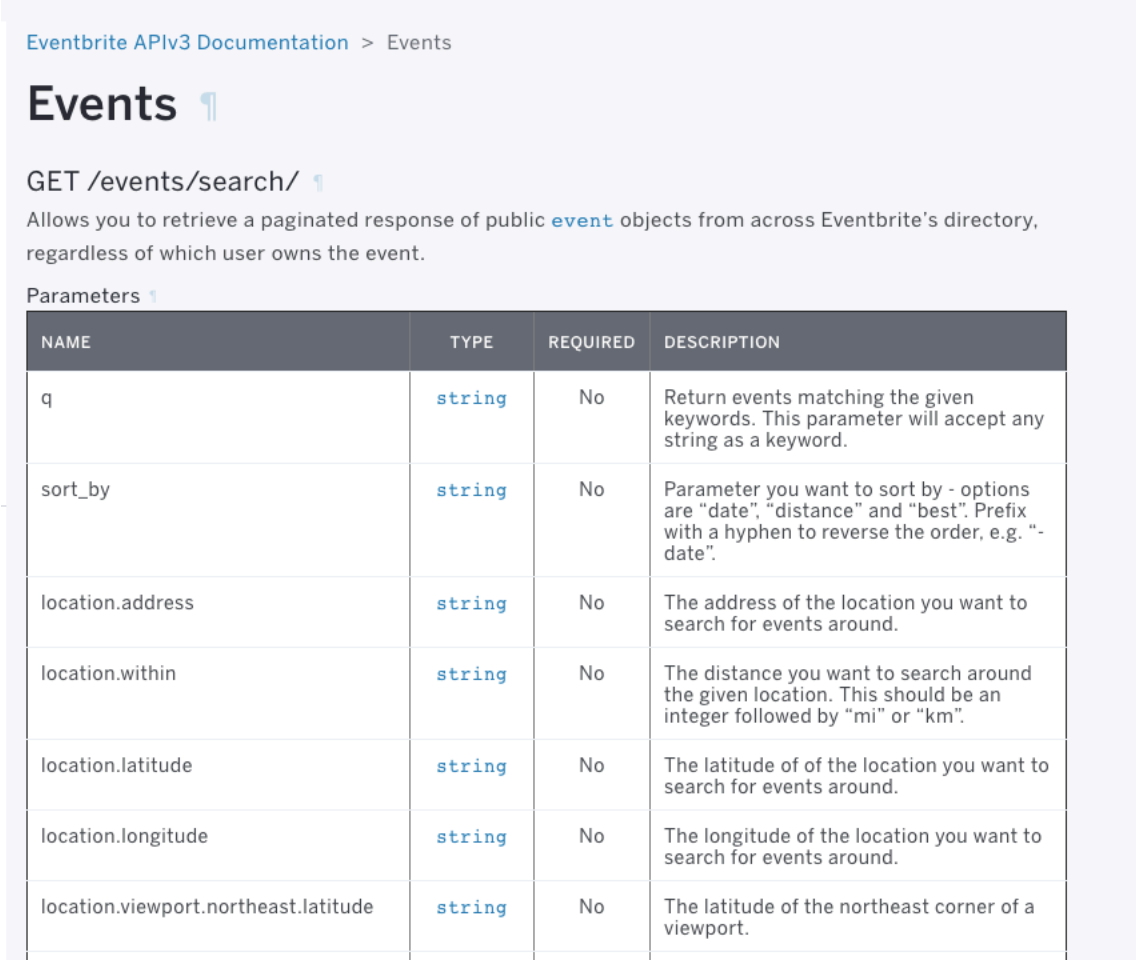
Is the data I need available?

- At this point, you don't need to understand the details. Look for what you can search for and what you can get back.
- What parameters does the API allow? Does this match your needs?
- What data is contained in the response? (It's okay if you don't know how to extract the data yet.)

An example: You want to look for events by location.

The documentation for Eventbrite shows that you can search by latitude and longitude. Score!

From the docs:



Eventbrite APIv3 Documentation > Events

Events ¶

GET /events/search/ ¶

Allows you to retrieve a paginated response of public `event` objects from across Eventbrite's directory, regardless of which user owns the event.

Parameters ¶

NAME	TYPE	REQUIRED	DESCRIPTION
q	string	No	Return events matching the given keywords. This parameter will accept any string as a keyword.
sort_by	string	No	Parameter you want to sort by - options are "date", "distance" and "best". Prefix with a hyphen to reverse the order, e.g. "-date".
location.address	string	No	The address of the location you want to search for events around.
location.within	string	No	The distance you want to search around the given location. This should be an integer followed by "mi" or "km".
location.latitude	string	No	The latitude of of the location you want to search for events around.
location.longitude	string	No	The longitude of the location you want to search for events around.
location.viewport.northeast.latitude	string	No	The latitude of the northeast corner of a viewport.

What you get back:


```
{
  "name": {
      "text": "An Aggressive Approach to Concise Writing",
      "html": "An Aggressive Approach to Concise Writing"
  },
  "description": {
      "text": "Webinar Description \nWriting concisely is one...",
      "html": "<P><STRONG> Webinar Description<\/STRONG><\/SPAN><P>
      Writing concisely is one of the...<\/P>"
  },
  "id": "17920884849",
  "url": "http://www.eventbrite.com/concise-writing-tickets-1792089",
  "start": {
      "timezone": "America/Los_Angeles",
      "local": "2015-09-24T12:00:00",
      "utc": "2015-09-24T19:00:00Z"
  },
  "end": {
      "timezone": "America/Los_Angeles",
      "local": "2015-09-24T13:00:00",
```

```
      "utc": "2015-09-24T20:00:00Z"
  },
  ...
}
```

Look for a Dataset

For more static data, look for a clean, easy-to-parse data set.

There are many formats available. For now, just make sure that it contains clean, consistent data.

Another example: You want to look for film location data

Some Googling uncovers the Film Location Dataset

Some Data Resources

American Community Survey of the US Census

Bureau of Labor Statistics

Healthcare.gov

CDC's Behavioral Risk Factor Surveillance System

Food and Drug Adminstration

SF OpenData

UFO Reports

Python APIs

Python API Wrappers

Need more? 1001 Datasets

Other Options

- Create your own dataset using Web Scraping
- Create your own *fake* dataset using Faker

Looking Ahead

Upcoming Lectures

- Projects: Order of Operations
- Projects: How Things Work
- Projects… omg, YOUR PROJECTS!