ORCA

Outbreak Response and Costing Analysis

[Figma](https://www.figma.com/file/JZvVu5JLSiR9VQlfkQLreU/Untitled?node-id=3%3A2&t=K569ZPqVOGT3mBTq-1)

[Frontend Github Repo](https://github.com/nairnairnair/orcas)

[Miro Board](https://miro.com/app/board/uXjVMSwGtA4=/)

## Objective

To create a new application that can analyze costs of outbreak response surveys provided by the Colorado Department of Public Health Education by streamlining the questionnaire process and showing visual data reports.

## Current Scale

About 5 Outbreaks a month with 15 outbreak response surveys per outbreak.

## Goals

* To be able forecast resource allocation for any new outbreaks based on previous similar outbreaks
* Use this data to support future funding requests
* Make it easier for employees to fill out questionnaire

## Requirements

* A page to create an outbreak i.e “Birthday Party Outbreak”
  + Ability to create outbreak response survey
  + Ability to update an existing outbreak response survey
  + Ability to submit an outbreak response survey
  + Ability to view total costs so far for the submitted surveys
* A page to see a given users outbreak responses started and completed
* A page to see visuals for a given outbreak
  + Time/cost spent by role id
  + Time/cost spent by agency
  + Total cost for a given outbreak
  + Time/cost spent for a given task

## Hosting Options

### ⭐ Developing and hosting the application in house (AWS, Azure)

#### ⚫[Azure](https://www.microsoft.com/en-us/nonprofits/azure)

💲Pricing

* Database Options
  + Postgres Database (Reserved Instances)
    - $1000 / year if you commit to 1 year
    - $1800 / 3 years if you commit to 3 years
  + Serverless SQL
    - $120 / year
* App Service to Host
  + $180 / year for Basic Tier with Linux
  + \*\*A Free Tier does exist if that works\*\*
* Storage
  + Included
* Microsoft 365
  + Included
  + Microsoft Forms
* Cost Management Solutions
  + Included

##### ➕Benefits

* https://www.microsoft.com/en-us/nonprofits/azure
* Can use a managed services within azure
* Centralized billing
* $3500 grants / year
* Includes training

##### ❌Trade Offs

* Need 1 full stack engineer or 2 engineers for backend and frontend
* Costs can go up as traffic goes up but you can set a spending limit
* Fewer resources for developers
* This isn’t google

#### ⚫[AWS](https://aws.amazon.com/government-education/nonprofits/nonprofit-credit-program/)

💲Pricing

* Postgres Database (Reserved Instances)
  + $550 / year if you commit to 1 year
  + $800 / 3 years if you commit to 3 years
* Lambda for Hosting
  + $0.20 per 1M requests
* S3 Storage
  + $0.005 / upload
  + $0.004 / fetch
* Cost Management Solutions
  + Included

##### ➕Benefits

* Can use a managed database within AWS
* Centralized billing
* $5000 one time grant for non profits, must activate credit within 1 year
* Cheaper overall, but the $5000 grant is one time

##### ❌Trade Offs

* Need 1 full stack engineer or 2 engineers for backend and frontend
* Costs can go up as traffic goes up but you can set a spending limit

#### ⚫[Google Cloud](https://cloud.google.com/)

💲Pricing

* Cloud SQL Database
  + $1000 / year if you commit to 1 year
  + $1500 / 3 years if you commit to 3 years
* Hosting solution
  + TODO
* Cloud Storage
  + TODO
* Cost Management Solutions
  + Included

##### ➕Benefits

* Can use a managed services within Google
* Centralized billing for all services

##### ❌Trade Offs

* Need 1 full stack engineer or 2 engineers for backend and frontend
* Costs can go up as traffic goes up but you can set a spending limit
* Complicated sign up process for services
* No non-profit credits, just discounts
* No free tier credit

### ⭐ Buy a CRM software (Salesforce, Hubspot)

#### ⚫[Salesforce](https://www.salesforce.org/nonprofit/)

💲Pricing

* Customer Community for Nonprofits Plan
* $0.50/login/month (billed annually)
* $1.25/member/month (billed annually)

##### ➕Benefits

* All in 1 tool

##### ❌Trade Offs

* Need 1 salesforce developer
* Visuals are out of the box, so less customizable

## 

## Scratch Pad Potential Costs

### Hosting

#### ▶️Google

##### 🔶Benefits

* Can use a managed database within google
* Centralized billing

##### 🔶Trade Offs

#### ▶️Azure

##### 🔶Benefits

* https://www.microsoft.com/en-us/nonprofits/azure
* Can use a managed database within azure
* Centralized billing
* $3500 in grants a year

##### 🔶Trade Offs

#### ▶️Netlify

##### 🔶Benefits

* Tuned for serverless and static

##### 🔶Trade Offs

#### ▶️Render

##### 🔶Benefits

* Most similar to heroku

##### 🔶Trade Offs

* Beginner friendly?

#### ▶️Fly.io

##### 🔶Benefits

##### 🔶Trade Offs

* Not beginner friendly

#### 

### Database

#### ▶️Firebase

##### 💲Pricing

* Free up to 1GB stored data
  + $4.50 / GB after that per month
* Cloud storage is free up to 5GB (2,500 high res photos)

##### 🔶Benefits

* Comes with authentication
* Push notifications
* Fire Machine Learning
* Hosting

##### 🔶Trade Offs

* NoSQL -- this data is relational, and we will need to query by multiple attributes for reporting so it will be inefficient

#### DynamoDB

##### 🔶Benefits

##### 🔶Trade Offs

* Limits you to AWS Infrastructure

#### PostgreSQL (AWS)

##### 🔶Benefits

* You can pay upfront costs to make bill cheaper

##### 🔶Trade Offs

* Limits you to AWS Infrastructure

#### Pocketbase

##### 🔶Benefits

* Can serve 10k concurrent and persistent real-time connections for potentially $6
* Stored all in 1 file

##### 🔶Trade Offs

### Storage

* Do we need to upload anything? Receipts?