# Zero Cost Web Apps

## Goals

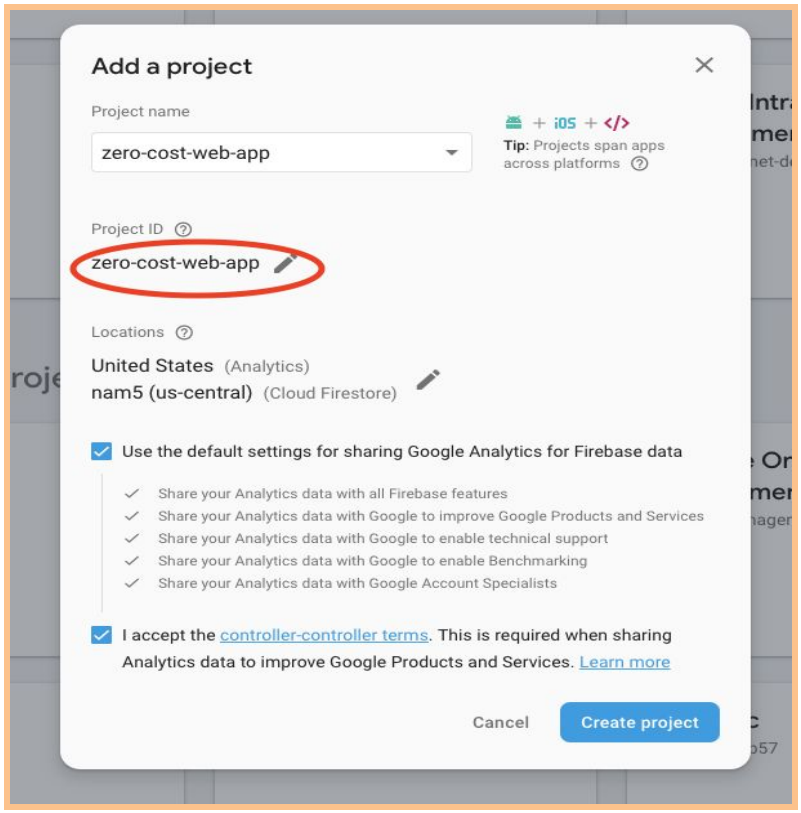
1. Create a single page application
2. Add SSR (Server Side Rendering)
3. Cache as much as possible to minimize roundtrips

## What's Next?

4. Part 2
    a. Add Service Worker
    b. Transform into a PWA (Progressive Web App)
5. Part 3
    a. Talk about other possible solutions i.e. Heroku, Netlify

## Prerequisites

1. Go to https://console.firebase.google.com
2. Create a firebase project called zero-cost-web-app
3. Note down project ID




# Global

```
> npm install -g ember-cli
> npm install -g firebase-tools
```

# Build App

1. Setup a new Ember app
2. Update package.json with extra npm scripts

```
> ember new zero-cost-web-app
> cd zero-cost-web-app
> ember install ember-cli-fastboot
> ember install ember-fetch

# Add commands needed to build & deploy application
> curl
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1
/raw/7de88b9b4dbb448e3c3103d993af594196800a1f/package.json -o package.json
```

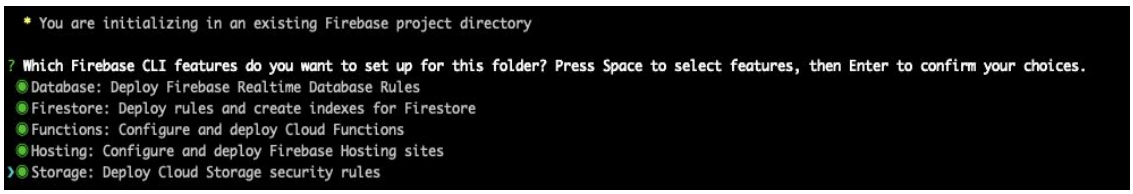
```
# Add fastboot host whitelist to environment config
> curl
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1
/raw/23de6376bb2f6bb5d839d93796c105f52dee4ab0/config%2520%257C%2520environm
ent.js -o config/environment.js

# Add option to include welcome page in production
> curl
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1
/raw/63e94551c6cc6dda827b4dd1cd83d37b5d9ffd2b/ember-cli-build.js -o
ember-cli-build.js

Ensure the right package versions are installed
> npm install
```

# Firebase

1. Setup Firebase project

```
> firebase login
> firebase init
```

2. Follow prompts to setup new project




   a. Use space-bar to select each of the choices
   b. Press enter to choose each default answer

3. Update firebase.json with SSR and cache rules

```
# Add config for SSR and caching
> curl
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1
/raw/d3a7fd29af85fcc25c3fedff1d2729058d4154f9/firebase.json -o
firebase.json
```

```
# Remove index file that may have been created on firebase init
> rm -rf public/index.html
```

# Firebase Functions

1. Setup Firebase Functions

```
> cd functions/
> npm install fastboot
> npm install fetch
> npm install ember-fetch

# Update index file to have SSR cloud function exported
> curl
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1
/raw/e446fd671489a5bafb86373c3ccef7da8d4d3b20/functions%2520%257C%2520index
.js -o index.js

# Go to root
> cd ..
```

# Start Application

```
> npm run build:firebase
> firebase serve

# Launches app in default browser
> open http://localhost:5000
```

# Deploy

```
> npm run deploy:firebase
```

Go to URL provided

```
=== Deploying to 'zero-cost-web-app'...

i  deploying database, storage, functions, hosting
i  database: checking rules syntax...
✔  database: rules syntax for database zero-cost-web-app is valid
i  storage: checking storage.rules for compilation errors...
✔  storage: rules file storage.rules compiled successfully
i  functions: ensuring necessary APIs are enabled...
✔  functions: all necessary APIs are enabled
i  storage: uploading rules storage.rules...
i  functions: preparing functions directory for uploading...
i  functions: packaged functions (395 KB) for uploading
✔  functions: functions folder uploaded successfully
i  hosting[zero-cost-web-app]: beginning deploy...
i  hosting[zero-cost-web-app]: found 10 files in dist
✔  hosting[zero-cost-web-app]: file upload complete
i  database: releasing rules...
✔  database: rules for database zero-cost-web-app released successfully
✔  storage: released rules storage.rules to firebase.storage/zero-cost-web-app.appspot.com
i  functions: updating Node.js 10 (Beta) function ssr(us-central1)...
✔  functions[ssr(us-central1)]: Successful update operation.
i  hosting[zero-cost-web-app]: finalizing version...
✔  hosting[zero-cost-web-app]: version finalized
i  hosting[zero-cost-web-app]: releasing new version...
✔  hosting[zero-cost-web-app]: release complete

✔  Deploy complete!

Please note that it can take up to 30 seconds for your updated functions to propagate.
Project Console: https://console.firebase.google.com/project/zero-cost-web-app/overview
Hosting URL: https://zero-cost-web-app.firebaseapp.com
```

# Expectations

- Open the developer tools and click on the network tab
- Find `*localhost*`
- You should notice that the full html is rendered for the page without the need for javascript to be executed.
- You should also notice that after the first hit most of the assets should now be retrieved from `*memory cache*`

## What We Built

- Finished Product
- Github Repo
- Github Gists

## Further Reading

- Firebase: Used as our hosting & SSL provider
- Firebase Functions: Allows us to have SSR without a server
- Ember: Javascript framework used to create our SPA
- Ember CLI: Command line utility that builds the application
- Ember Fastboot: Adds server-side rendering to the application