GOOGLE FIREBASE EXPERIMENTS

HOW TO MAKE AN EXPERIMENT ON THE INTERNET

WHAT I'LL COVER

- Basic experiment creation in jspsych
- Project creation in Firebase
- Installing Firebase tools
- Deploying the experiment as a website

jspsych

A JavaScript library for creating and running behavioral experiments in a web browser.

BASIC HTML FRAME

- Start by declaring the document type
- Use src lines to link to the different jspsych files in use

```
<!doctype html>
<html>
  <head>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/1.11.1/jquery.min.js"></script>
    <script src="jspsych-5.0.3/jspsych.js"></script>
    <script src="jspsych-5.0.3/plugins/jspsych-text.js"></script>
    <script src="jspsych-5.0.3/plugins/jspsych-survey-text.js"></script>
    <script src="jspsych-5.0.3/plugins/jspsych-single-stim.js"></script>
    <script src="jspsych-5.0.3/plugins/jspsych-survey-likert.js"></script>
    <script src="jspsych-5.0.3/plugins/jspsych-instructions.js"></script>
    <link rel="stylesheet" href="jspsych-5.0.3/css/jspsych.css"></link>
  </head>
```

JSPSYCH BLOCK

- There are some general similarities
  - Stored in a variable
  - Declare type of block
  - Other parameters depend on the type
- The details on the type are on the jspsych website
- There are also examples in the zip for jspsych

```
var instructions = {
  type: 'instructions',
  pages: [
      'Welcome to the experiment. Click next to begin.',
      'This is the second page of instructions.',
      'This is the final page.'
  ],
  show_clickable_nav: true
}
```

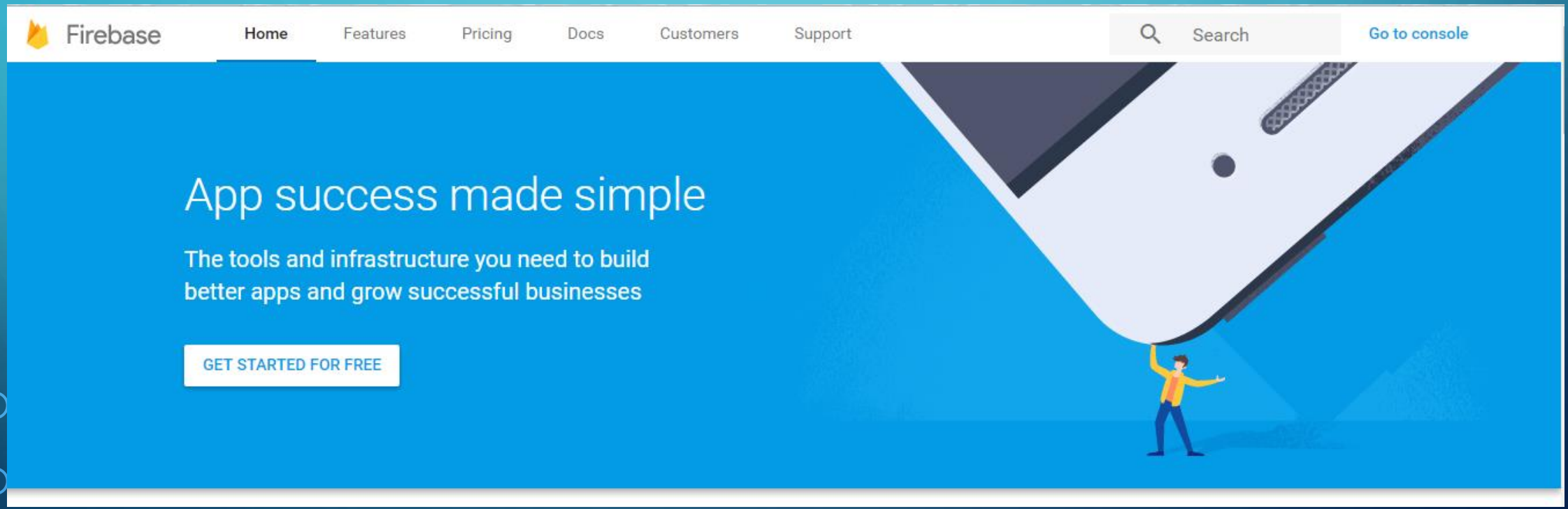
MORE BLOCKS

- Keep adding blocks until you have a full experiment
- Then at the end, include the experiment initialization
- Then you have an experiment!

```
var trial = {
    type: 'single-stim',
    stimulus: "<p>This is some html test stimulus text!</p>",
    is_html: true,
    choices: [70, 74], // f or j
    prompt: '<p class="center-content">Press f or j</p>',
    data: {
      node_data: true
    }
}

experiment.push(instructions)
experiment.push(trial)

jsPsych.init({
    timeline: experiment,
    on_finish: function() {
      jsPsych.data.displayData();
    },
});

</script>
</html>
```

BUT THAT'S NOT ALL!

- The experiment alone won't save the data.
- You need a firebase project to connect it to

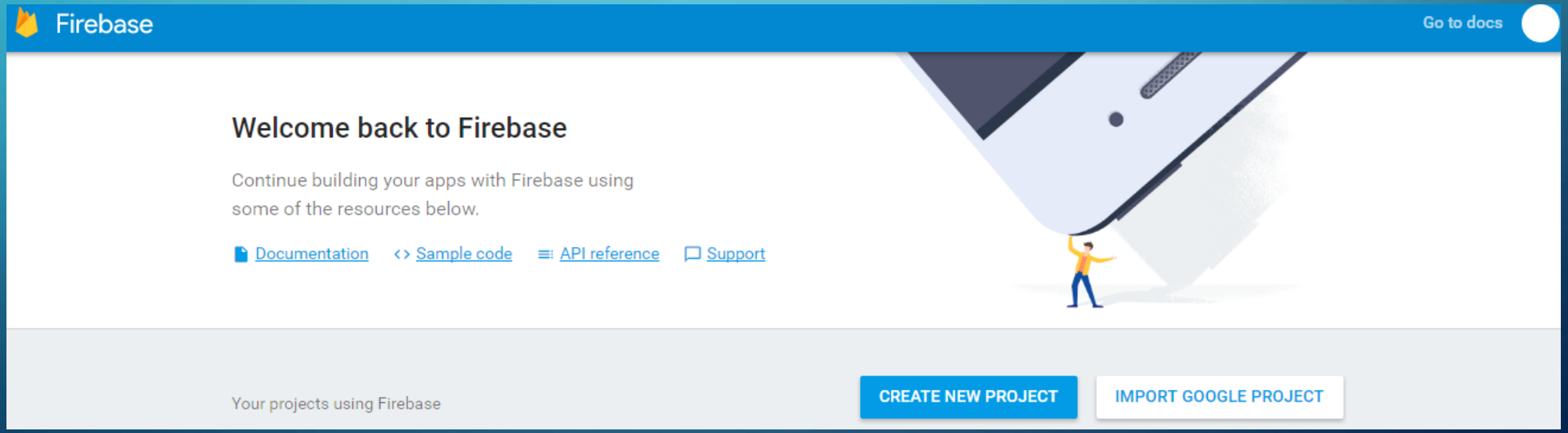


COMMAND LINE TOOLS

- Before you can deploy a firebase site, you need the tools
- First, install node.js
- Then, in the command line/terminal, run “npm install –g firebase-tools”
- Once the tools are installed, use the “firebase login” and log in. (It will open a browser window for you to do so.)

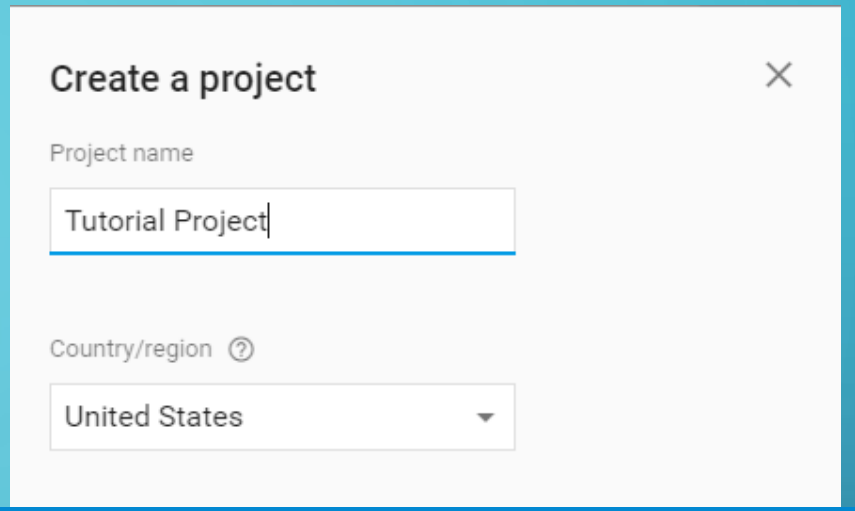
NEW PROJECT

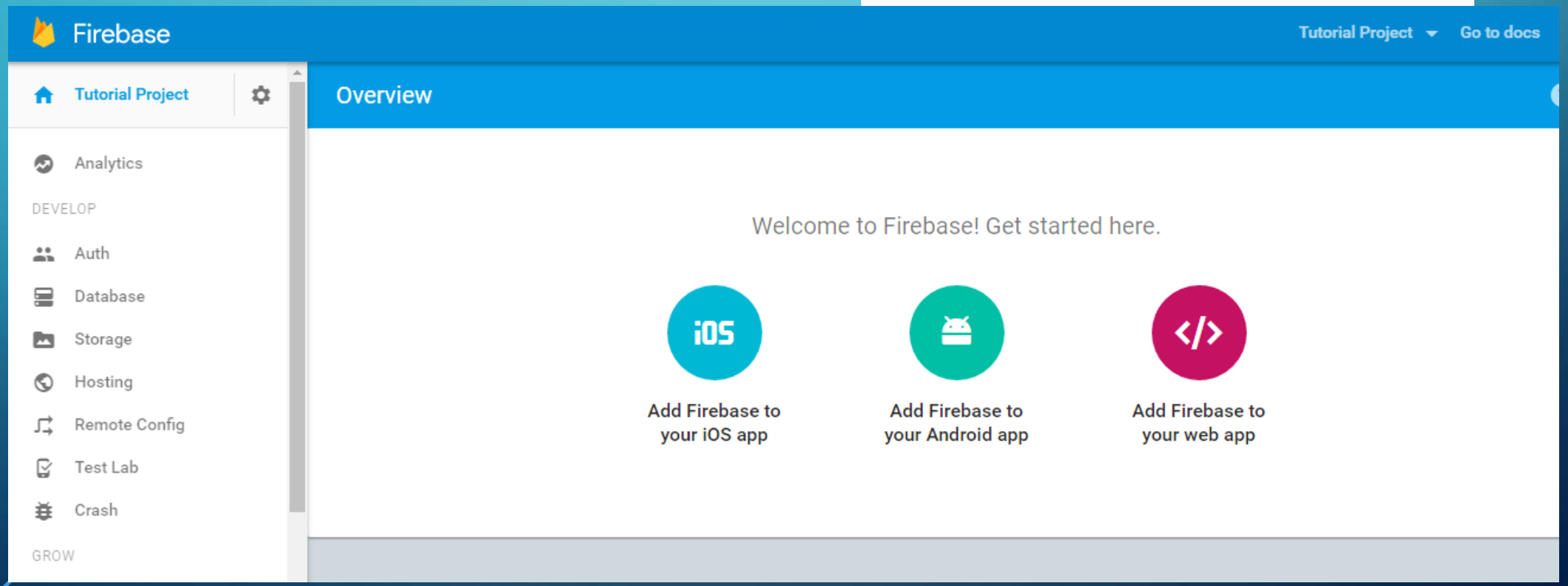
- From the main firebase page, go to console
- Create a new project!



THE PROJECT

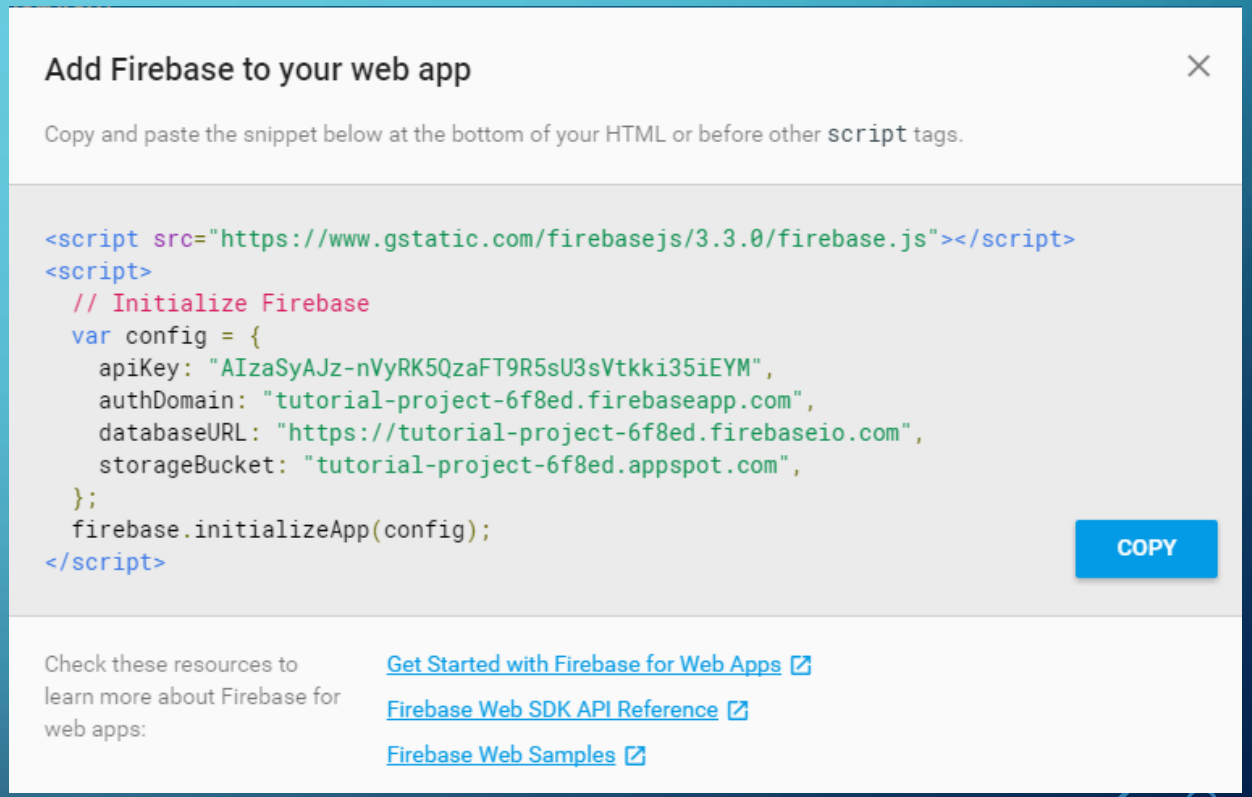
- The project only needs a name
- Then you can see its home page.





ADDING FIREBASE TO THE EXPERIMENT

- Start by getting the code from the project
- Click the button to add firebase to your web app
- Add the code below your links to the jspsych package.



DATA SUBMISSION

- To get the data to submit, you need an additional block in your experiment
- It runs for .001 seconds, and takes that time to save the data to the Firebase database

```
function saveToFirebase(code, filedata){
    var ref = firebase.database().ref(code).set(filedata);
}

var submit_block = {
    type: 'single-stim',
    stimuli: [" "],
    choices: ['none'],
    timing_response: .001,
    timing_post_trial: 0,
    on_finish: function() {
        saveToFirebase('subject_code', jsPsych.data.getData());
    }
}
experiment.push(submit_block)
```

DATABASE PERMISSIONS

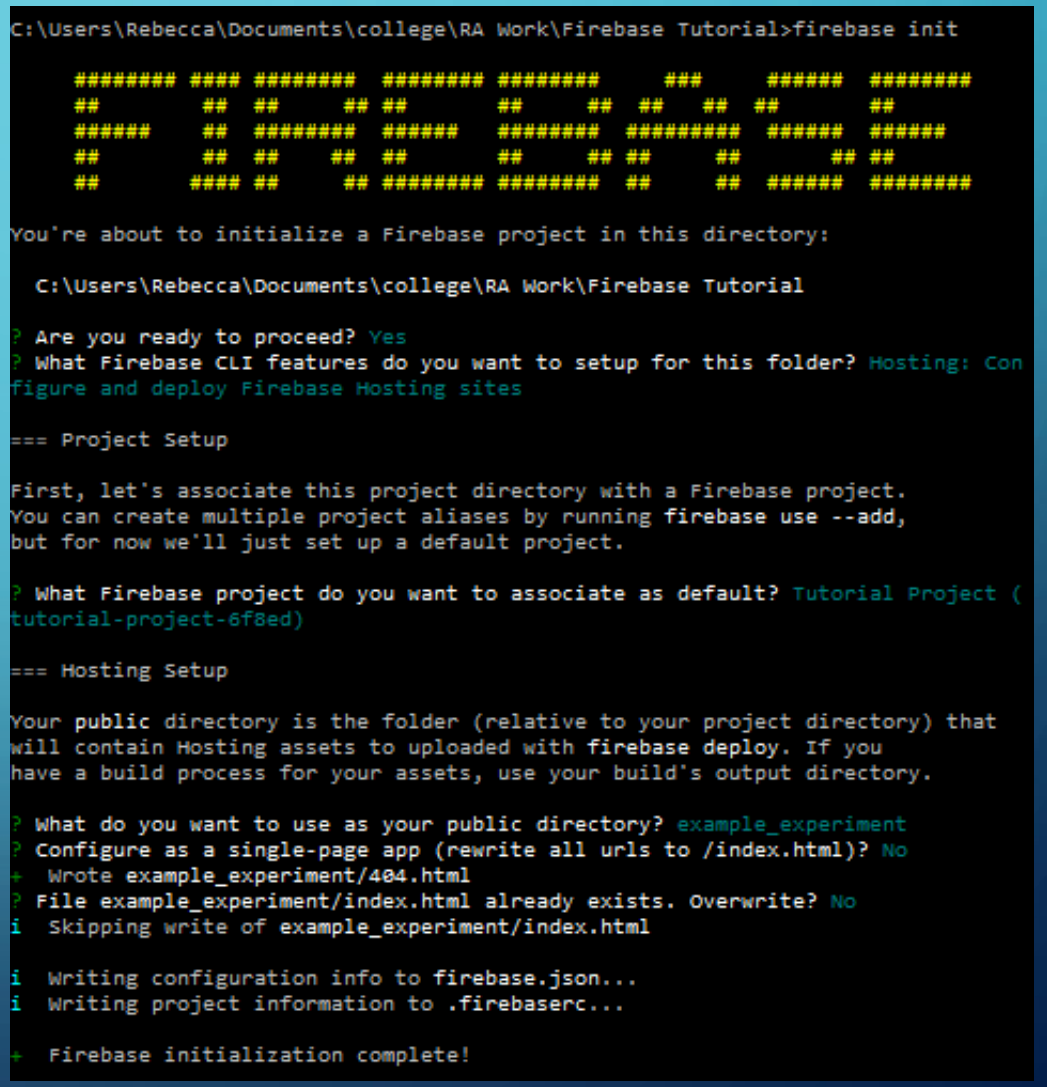
- I usually leave two sets of rules (database open, and database closed) in the rules and comment out one
- You can access the database from the sidebar

LAST SETUP DETAILS

- Make sure your experiment is in a folder *in a folder* where you'll initialize firebase hosting.
  - For example:
    User/your_name/Experiments/Firebase_experiment/Tutorial_project/experiment.html
- In the command line/terminal, use the "cd" command to Choose the Directory for the experiment
  - The outer directory. In the example above, it would be "Firebase_experiment"
- Name your experiment "index.html". This will make it the main page for the experiment

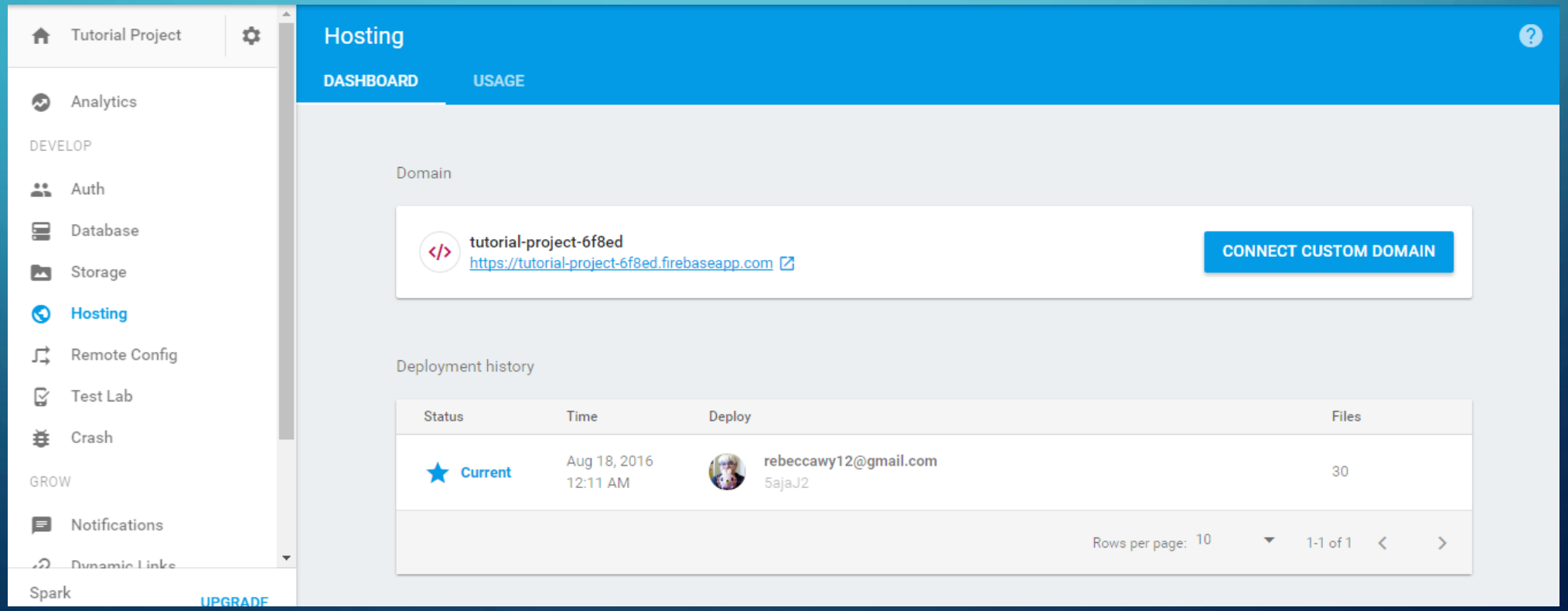
INITIALIZING AND DEPLOYING FIREBASE

- First use “firebase init” to initialize firebase in the directory.
- Use spacebar to de-select the database from the options. (It’s handled on the website console.)
- Use your project as the default, and the inner directory name as the public directory
- Don’t make it a single page app, and don’t overwrite index.



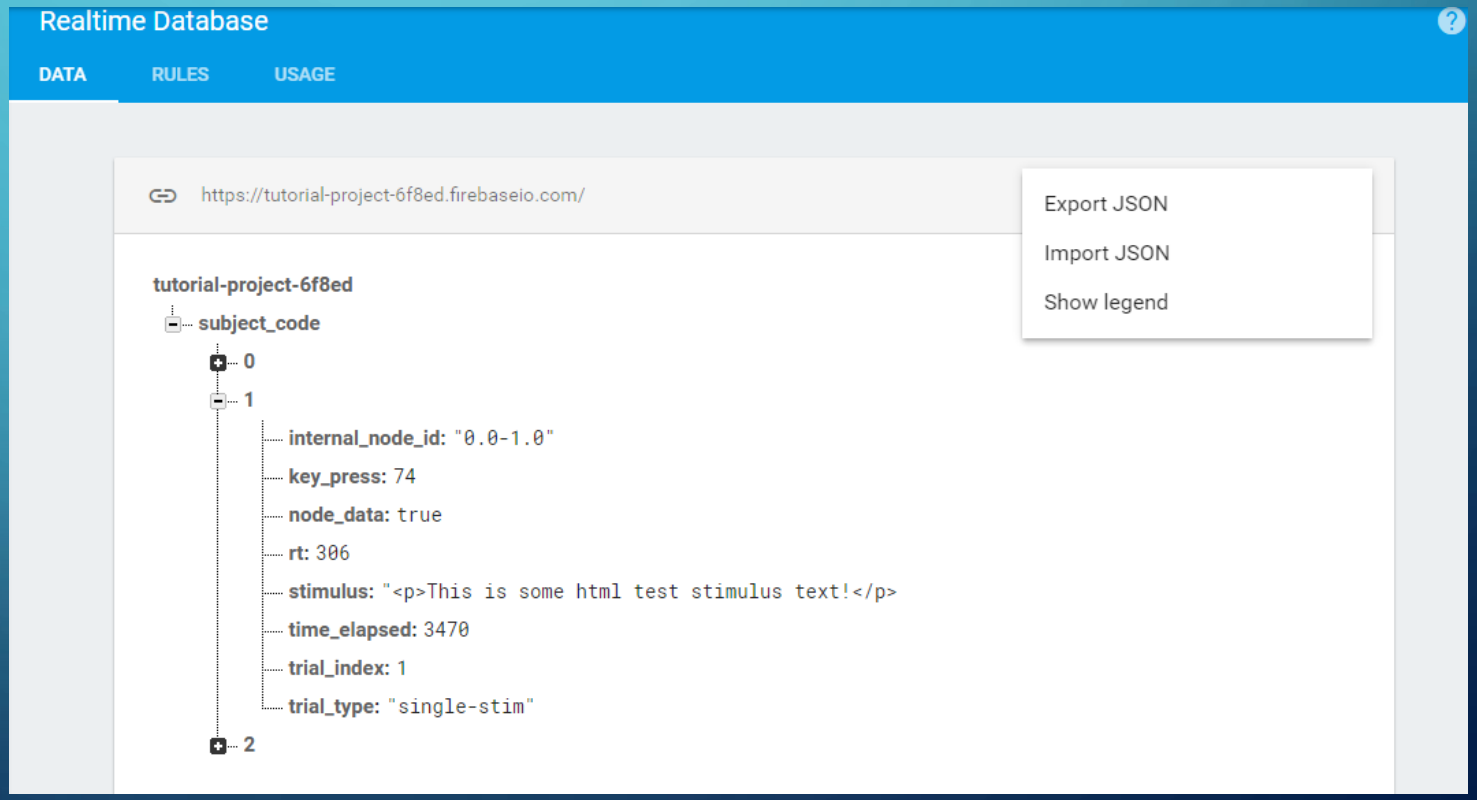
FINALLY…

- Use the “firebase deploy” command to put the experiment online! (It can take a bit of time to change sometimes, so make sure to check on it.)
- Use the same command if you ever need to deploy changes to your experiment.



AND GET YOUR RESULTS!

- Check the database tab again to see your data!
- You can export it as a json, and convert it to a csv
- You're done!



HELPFUL RESOURCES

- The google firebase homepage
  - https://firebase.google.com/
- Instructions for installing the Firebase Tools
  - https://firebase.google.com/docs/cli/
- Jspsych homepage
  - http://www.jspsych.org/