Appian
Academy

Build an Application: Step-by-Step #11

Exercise to Accompany
Reports: Build Basic Charts and Grids

The Appian Step-by-Step series consists of 12 exercises that accompany the courses in the Appian Developer learning path. Exercises build upon each other. Complete exercises in order and keep the app and all objects until you are done with the project.

This exercise was developed for **Appian 25.3**. If Appian Community Edition is on a later Appian version, functionality might be different. Go to academy.appian.com to download the latest exercise.

Exercise 11: Reports

In this exercise, you will create a report for supervisors and registrars. This report will contain:

- A column chart of vehicles by make and category
- A pie chart of vehicles by make
- A drillable bar chart by make

You will create each chart as a separate interface. Then, you will combine them into a single interface and add the interface as a new page on the Step-by-Step Acme Auto site.

Create a Column Chart

First, create the column chart of vehicles by make and category.

1. In the **Build** view of your application, click **NEW** > **Interface**. In the **Create Interface** dialog, configure the following properties:

    - **Name**: Enter `W#SA_VehicleColumnChart`.
    - **Description**: Enter `An interface with the column chart of vehicles by make and category`.
    - **Save In**: Select **W#SA Interfaces**.

2. Drag and drop a **COLUMN CHART** component onto the canvas. Change the **Label** to `Vehicles by Make and Category`.

3. In the **Component Configuration** pane, as the **Data Source**, select **Record Type**. In **Search record types**, enter and select **W#SA Vehicle**.

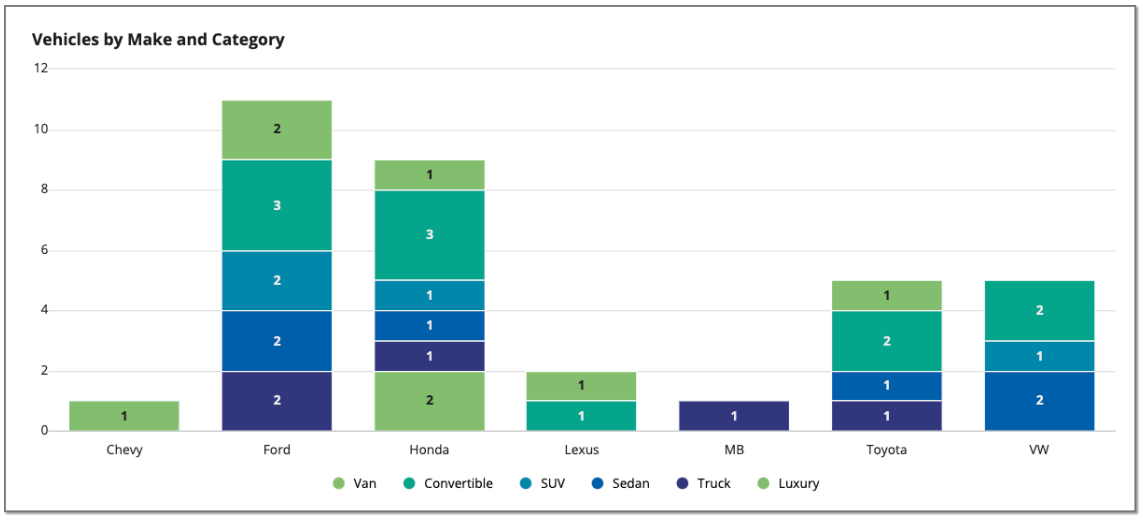
    Once you select W#SA Vehicle, the primary grouping and measure properties populate. The primary grouping should be by **make**.

4. Configure the **Secondary Grouping** property. Click **Add Grouping**, and under **Secondary Grouping**, click the arrow for the dropdown. Select **vehicleCategory** > **value**.

5. Next is **Measure**. This field was correctly populated with the count of vehicle IDs. Keep this value.

6. Under **Stacking**, select **Normal**.

7. Select the **Show data labels** checkbox.
8. Click **SAVE**. Your final column chart will look like the image below.



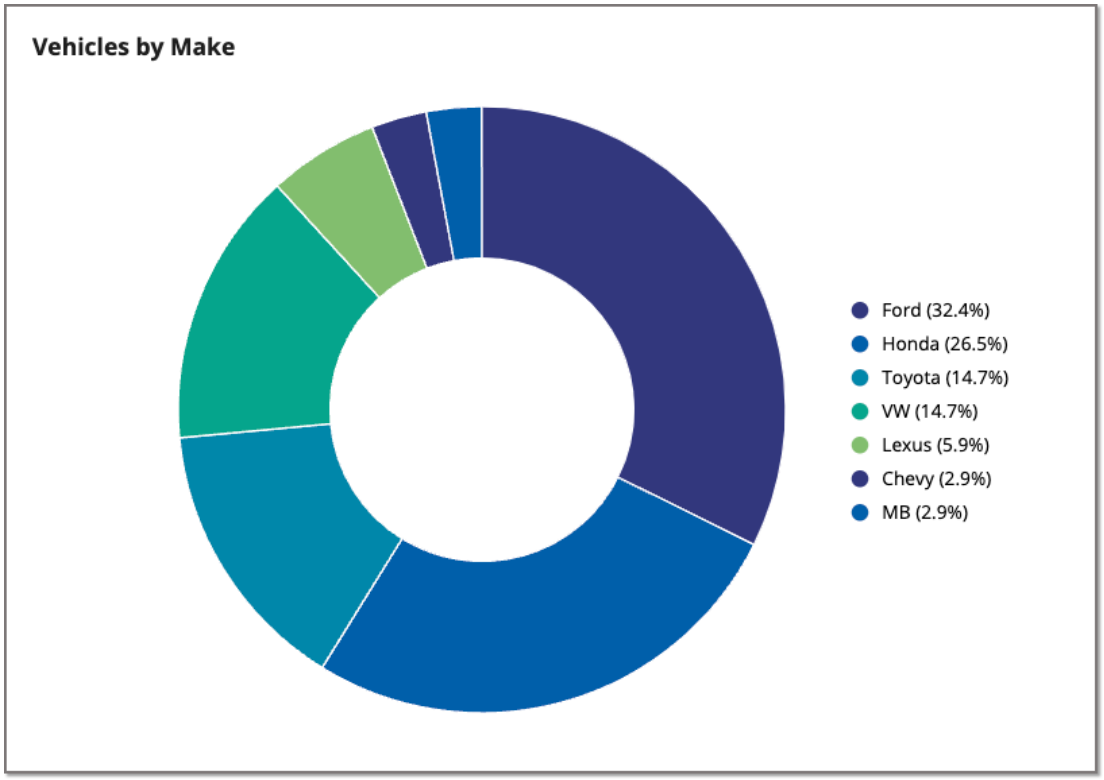
Create a Pie Chart

Next, create a pie chart of vehicles by make.

1. In your application, create a new interface. Configure the following properties:
   - **Name**: Enter `W#SA_VehiclePieChart`.
   - **Description**: Enter `An interface with the pie chart of vehicles by make.`
   - **Save In**: Select **W#SA Interfaces**.
2. Drag and drop a **PIE CHART** component onto the canvas. Change the **Label** to `Vehicles by Make`.
3. In the **Component Configuration** pane, as the **Data Source**, select **Record Type**. In **Search record types**, enter and select **W#SA Vehicle**.

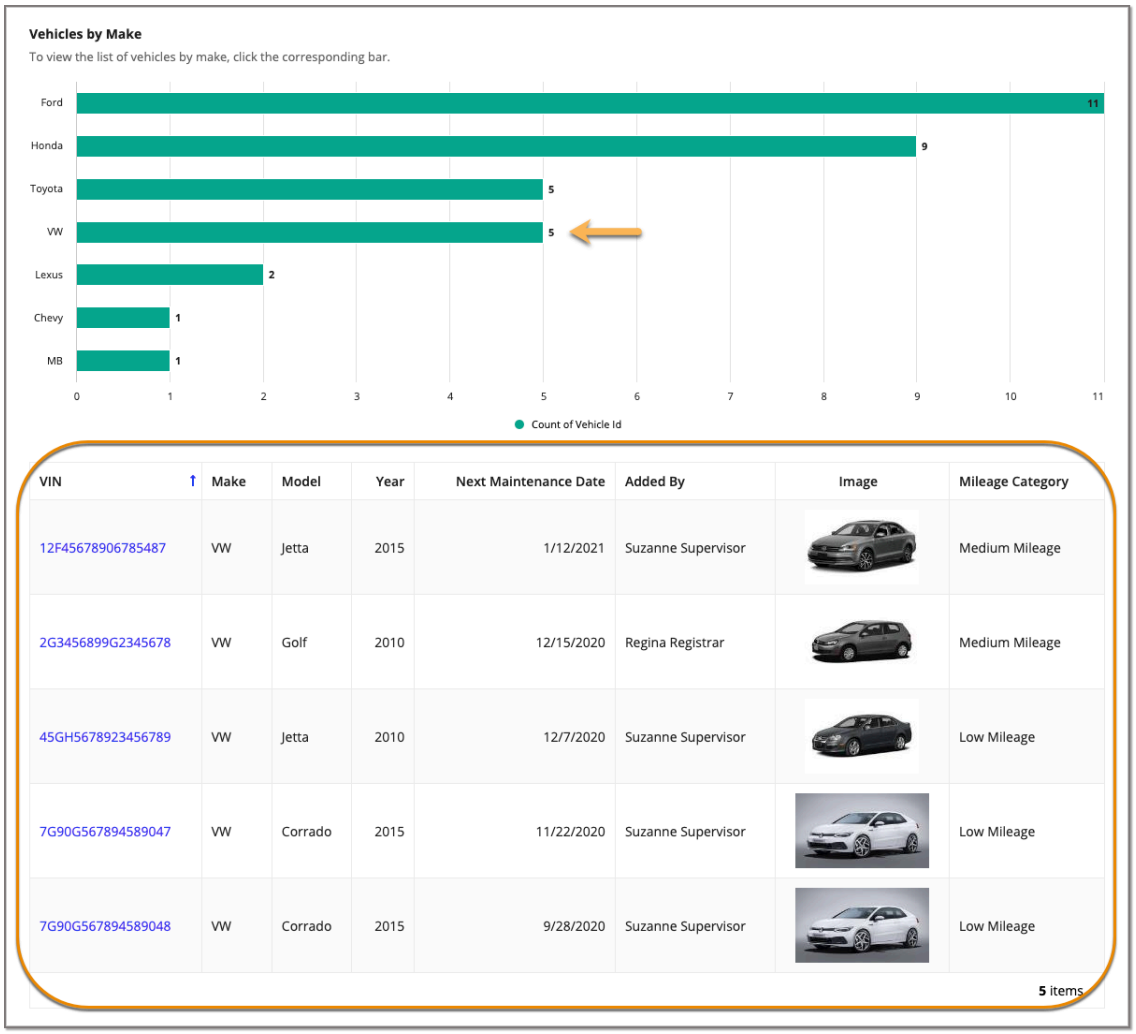
   Once you select W#SA Vehicle, the primary grouping and measure properties populate. The primary grouping should be by **make**. The measure should be **Count of**, then **id**.
4. Sort your chart from largest to smallest percentage. In the **Component Configuration** pane, under **Sort**, click **ADD SORT**.
   - In the **Sort By** dropdown, select **id_count_measure1**.
   - Under **Order**, keep **Descending** selected.

5. Under **Series**, select the checkboxes for **Show data labels** and **Show as percentage**.
6. Under **Series Labels**, select **In legend**.
7. Click **SAVE**. Your final pie chart will look like the image below.



Create a Drillable Bar Chart

In this step, you'll create a drillable bar chart of vehicles by make. If you click any of the bars in this chart, the grid with the vehicles of the selected make will display below the chart.



Follow the steps below to create the drillable bar chart.

1. In your application, create a new interface. Configure the following properties:
    - **Name**: Enter `W#SA_VehicleDrillableChart`.
    - **Description**: `An interface with the drillable bar chart of vehicles by make.`
    - **Save In**: Select **W#SA Interfaces**.
2. Drag and drop a **BAR CHART** component onto the canvas. Change the **Label** to `Vehicles by Make`.

3. In the **Component Configuration** pane, as the **Data Source**, select **Record Type**. In **Search record types**, enter and select **W#SA Vehicle**.

   Once you select W#SA Vehicle, the primary grouping and measure properties populate. The primary grouping should be **make**. The measure should be **Count of**, then **id**.

4. Under **Sort**, click **ADD SORT**. In the **Sort By** dropdown, select **id_count_measure1**. Keep **Descending** selected.

5. Under **Instructions**, enter `To view the list of vehicles by make, click the corresponding bar.` This will ensure that users know that the bar chart is clickable.

6. Select the **Show data labels** checkbox.

7. Click **SAVE**.

Add a Read-Only Grid

1. Drag and drop a **READ-ONLY GRID** component below the bar chart.

2. Delete the label **Read-only Grid**.

3. In the **Component Configuration** pane, as the **Data Source**, select **Record Type**. In **Search record types**, enter and select **W#SA Vehicle**.

4. Clear the checkboxes for **Show refresh button** and **Show search box**.

5. Under **Records Actions**, click **X** next to **Add Vehicle** to remove it.

6. Add the **make** local variable. You will use this local variable to add a record filter to display the vehicles by make. The local variable will hold the temporary make selection in the bar chart. Local variables are added at the beginning of an expression, and can only be referenced within the expression that they encapsulate.

   In **Local Variables**, click the **New Local Variables** icon. Configure the following properties:

   - **Name**: Enter `make`.
   - **Value**: Leave this field blank.
   - Click **CREATE**.

7. Click the read-only grid component. In the **Component Configuration** pane, click **FILTER RECORDS**.

   - In the **Filter Records** dialog, click **Add Filter**.
   - In the **Field** column, select **make**.

- In the **Condition** column, select **equal to**.
- In the **Value** column, click **(x)** > **Input/Variable**.
- In the new **Value** dropdown, select **local!make - Null**.
- Click **OK**.

8. Configure the dynamic link that will link the bar chart to the grid. Click the **Bar Chart** component on the canvas. In the **Component Configuration** pane, under **Link**, click **INSERT LINK**. Then, click **Dynamic Link**.

    - Under **Value**, click **fv!selection**. Update this expression to:

      ```
      fv!selection.make_primaryGrouping
      ```

    - Click **OK**.
    - Under **Save Value To**, select **local!make**.

      make_primaryGrouping is the alias for the bar chart's primary grouping property. To look it up, go to **Primary Grouping** and click the **Edit as Expression** icon.

9. Hide the grid when no make is selected. Click the **Read-only Grid** component. In the **Component Configuration** pane, expand the **Layout** menu.

    - Under **Visibility**, select **Only show when**.
    - Click **Edit Condition**, and enter the following expression:

      ```
      a!isNotNullOrEmpty(local!make)
      ```

    This expression will only show the grid if a vehicle make is selected.

    - Click **OK**.

10. Click **SAVE**. To test the chart, click any bar in the bar chart and see the list of vehicles in the grid update to the selected make.

Create a Report Interface

Next, combine all three charts into a single interface.

1. In your application, create a new interface. Configure the following properties:

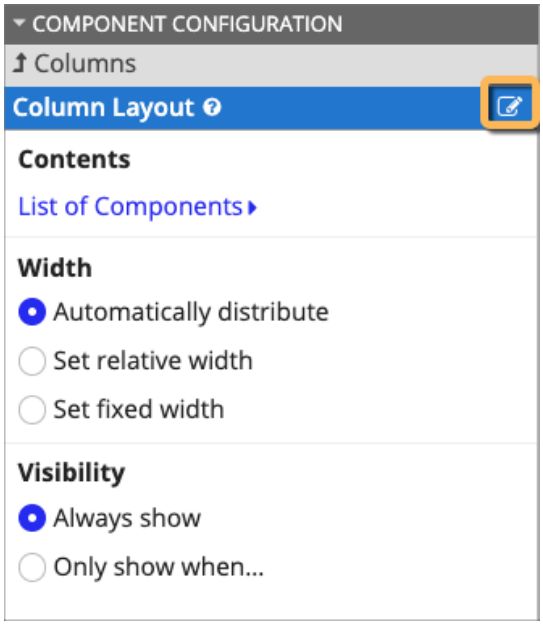
    - **Name**: Enter `W#SA_VehicleReportInterface`.
    - **Description**: Enter `An interface that shows the charts of vehicles by category and make.`
    - **Save In**: Select **W#SA Interfaces**.

2. Drag and drop a **SECTION** layout onto the canvas. Update the section **Label** to `Fleet Data`.

3. Next, drag and drop a **COLUMNS** layout into the **Section** layout.

4. Delete one column.

5. Click the **first column**. In the **Component Configuration** pane, next to **Column Layout**, click the **Edit as Expression** icon.



6. In the Expression Editor, click inside of the curly brackets, and enter `rule!W#SA_VehiclePieChart`. Click **OK**.

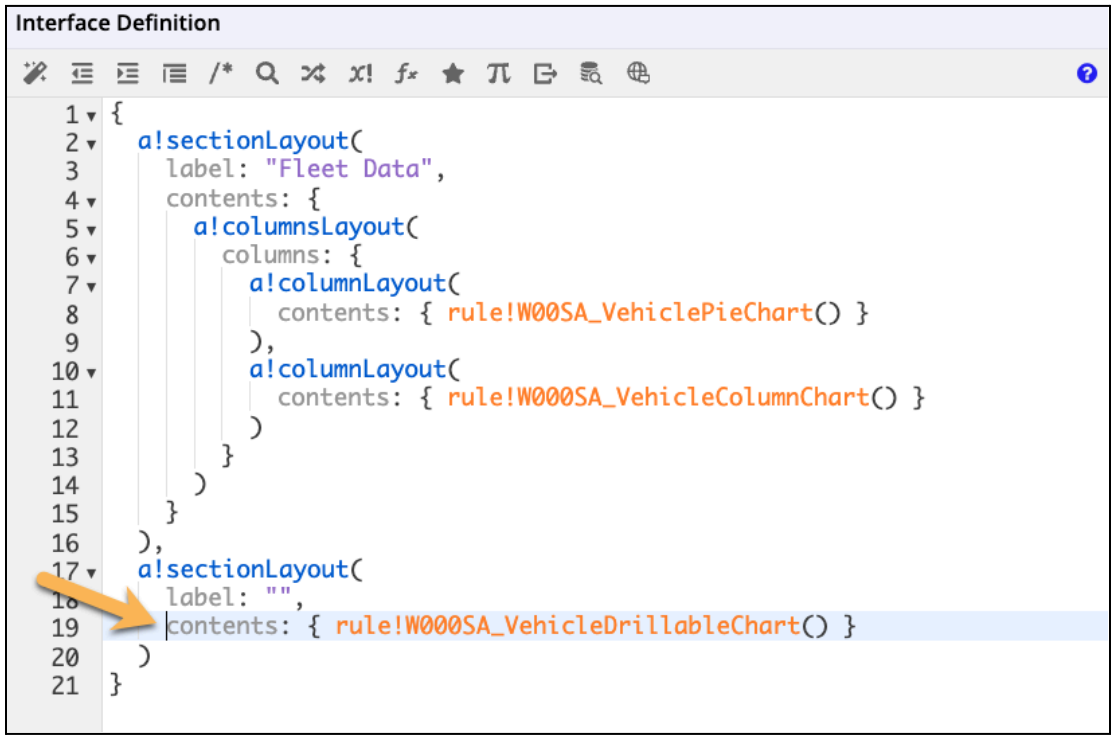
Alternatively, you could use the design library to drag and drop reusable interfaces. To include these charts in your design library, return to the three chart interfaces you just created. In the interface properties, select **Include in the design library**.

7. Click the **second column**, and then repeat steps 5–6 above, but use the following expression: `rule!W#SA_VehicleColumnChart`.

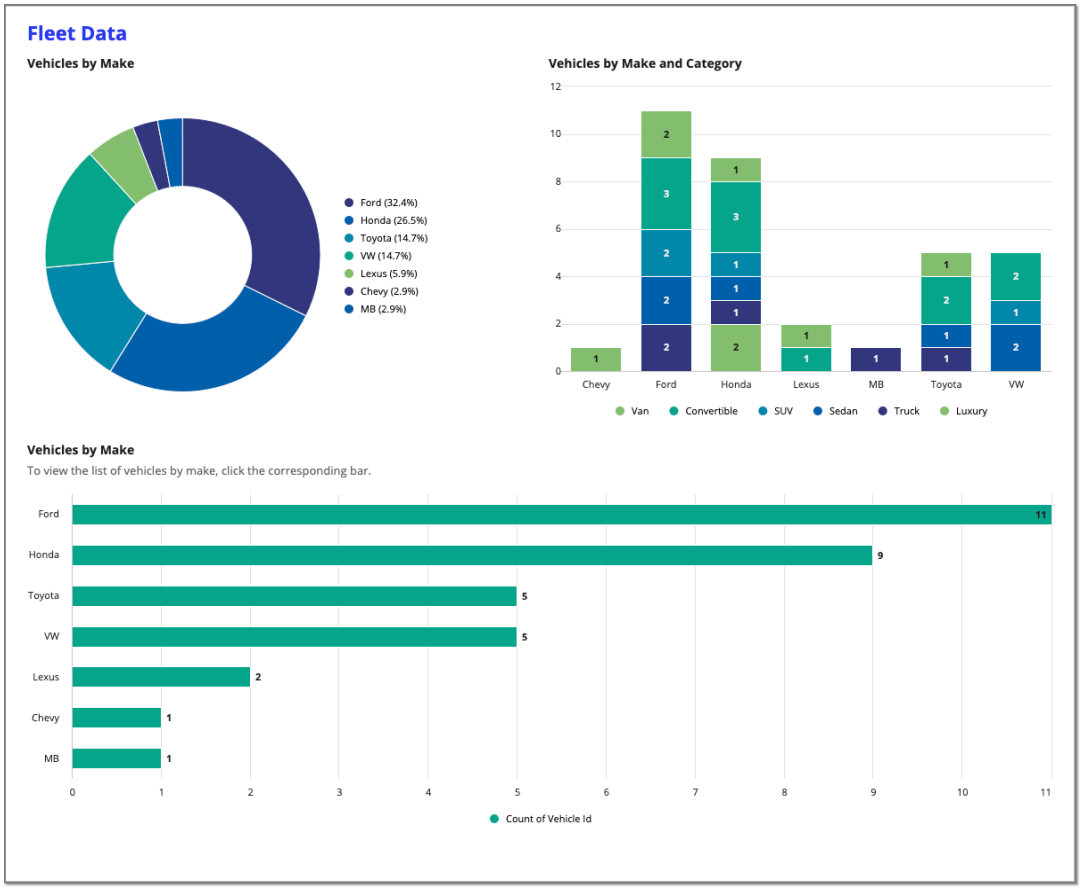
8. Drag and drop another **SECTION** layout below the first section layout. Delete the label.

9. This time, add the drillable bar chart to the interface using Expression Mode. Click **EXPRESSION MODE**.

10. Locate the last section layout that you added to this interface in Design Mode, and click inside the curly brackets for **contents**. Enter the following expression: `rule!W#SA_VehicleDrillableChart()`



11. Click **DESIGN MODE**, then **SAVE**. Your interface is now complete.



Add the Report Interface to the Site

Now that your report interface is complete, you will add it to your Step-by-Step Acme Auto site as a new page.

1. Open **Step-by-Step Acme Auto** site.
2. Click **ADD PAGE**, and then configure the following properties:
    - **Title**: Enter `Fleet Report`.
    - **Icon**: Select an appropriate icon.
    - **Type**: Select **Interface**.
    - **Content**: Select **W#SA_VehicleReportInterface**.
    - Click **ADD**.
3. Click **SAVE**.
4. Before you close the object, view your new site. Under **Web Address**, click the **URL**. Alternatively, click the Navigation menu, and select **Step-by-Step Acme Auto** site.

Test your new site by completing the following tasks:

- Review the list of vehicles.
- Access a summary view for a vehicle or two, and check that the Request Maintenance button is available.
- Go to the Add Vehicle to Fleet page to see the Add Vehicle form.
- Go to the Fleet Report page, and review the charts. Test the drillable chart!

Troubleshooting Resources

Stuck on a step, or need help troubleshooting? Appian provides several support resources that you can use as you build:

1. **Acme Auto Solution Application** - The Acme Auto Solution Application (AS) is the solution to the exercises you are following in the Step-by-Steps. You can use the AS application as a reference tool. Review it to see how specific objects are configured, or test the application to see how the features work from a business user's perspective. This application is preloaded into your workspace. If you do not see it in the list of applications in your workspace, you can deploy it from the App Catalog. Refer to **Build an Application: Step-by-Step #1** for more information on how to use the App Catalog.

2. **Community Discussions for New Users** - Check out the **New to Appian** thread in Community. Join our community of experts to ask questions and find answers from past discussions.

3. **Appian Documentation** - Appian's product documentation will provide you with an overview of key Appian features, newest release information, additional tutorials, and helpful patterns and recipes to implement in your app.