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// Tutorial //

How To Use Chart.js with Vue.js

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Vue.js

By Dave Berning
Developer and Author

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Introduction

Chart.js is a powerful way to create clean graphs with the HTML5 `<canvas>` element. With Vue's `data()` object, it is possible to store data and manipulate it to change graphs when needed.

In this article, you will use Chart.js in a sample Vue project to display information about planets in the solar system.

Prerequisites

To complete this tutorial, you will need:

- Node.js installed locally, which you can do by following How to Install Node.js and Create a Local Development Environment.
- Some familiarity with setting up a Vue.js project and using Vue.js components may be beneficial.

This tutorial was verified with Node v15.11.0, `npm` v7.6.1, `vue` v2.6.11, and Chart.js v2.9.4.

Step 1 – Setting Up the Project

To quickly set up the project, this article will recommend using `@vue/cli`.

Note: This article will take the approach of using `npx` to avoid a global installation of `@vue/cli`;

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```
$ cd vue-async-computed-example
```

Copy

Chart.js can be installed through `npm` with the following command:

```
$ npm install chart.js@2.9.4
```

Copy

At this point, you will have a new Vue project that supports Chart.js.

Step 2 – Creating the Chart Component

This chart will consist of two datasets:

1. The number of moons each planet in the solar system has.
2. The mass of each planet in the solar system.

With these two datasets, we can have different chart types to show correlations in data.

Open your code editor and under `src` directory and `components` subdirectory, create a new `PlanetChart.vue` file.

Every Chart.js chart needs to have a `<canvas>` in the HTML markup. The `id` of the chart is used as a selector to bind the JavaScript to it.

PlanetChart.vue

```
<template>
  <div>
    <canvas id="planet-chart"></canvas>
  </div>
</template>

<script>
import Chart from 'chart.js'

export default {
  name: 'PlanetChart'
}
</script>
```

Copy

Next, you will modify the `App.vue` file to use the new `PlanetChart`:

src/App.vue

```
<template>
```

Copy

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```
import PlanetChart from './components/PlanetChart.vue'

export default {
  name: 'App',
  components: {
    PlanetChart
  }
}
</script>
```

Save the changes to your file.

In order to keep the component and the configuration separate, you will next be creating a new file for the chart data.

Step 3 – Creating the Chart Data

Creating a chart with Chart.js resembles the following:

```
const ctx = document.getElementById('example');
const exampleChart = new Chart(ctx, {
  type: '',
  data: [],
  options: {},
});
```

Copy

A `<canvas>` element is passed in along with a `type`, `data`, and `options`.

You will be creating a new file that defines these values. Open your code editor and under `src` directory, create a new `planet-data.js` file. Keep in mind, you will want to give it a unique and descriptive name based on the data. You can have several data objects in this file for different charts.

Add the following lines of code to `planet-data.js`:

src/planet-data.js

```
export const planetChartData = {
  type: "line",
  data: {
    labels: ["Mercury", "Venus", "Earth", "Mars", "Jupiter", "Saturn", "Uranus", "Neptu
    datasets: [
      {
        label: "Number of Moons",
        data: [0, 0, 1, 2, 79, 82, 27, 14],
        backgroundColor: "rgba(54,73,93,.5)",
```

Copy

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```
        backgroundColor: "rgba(71, 183,132,.5)",
        borderColor: "#47b784",
        borderWidth: 3
      }
    ]
  },
  options: {
    responsive: true,
    lineTension: 1,
    scales: {
      yAxes: [
        {
          ticks: {
            beginAtZero: true,
            padding: 25
          }
        }
      ]
    }
  }
};

export default planetChartData;
```

The `type` will be set to `line`. The `data` will consist of of two `datasets`, `backgroundColor`, `borderColor`, and `borderWidth`. The `options` will consist of `responsive`, `lineTension`, and `scales`.

> **Note:** You can reference the Chart.js documentation for more information about line charts, as well as others like `bar`, `polarArea`, `radar`, `pie`, and `doughnut`.

By exporting `planetChartData`, you are allowing that `const` to be imported into another JavaScript file. More importantly, you are separating the data from the component. This best practice allows you to apply changes to only the relevant file and offers greater maintenance over time.

Revisit the `PlanetChart` component and add `planetChartData`:

src/components/PlanetChart.vue

Copy

```
<script>
import Chart from 'chart.js'
import planetChartData from '../planet-data.js'

export default {
  name: 'PlanetChart'
}
</script>
```

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```
<script>
import Chart from 'chart.js'
import planetChartData from '../planet-data.js'

export default {
  name: 'PlanetChart',
  data() {
    return {
      planetChartData: planetChartData
    }
  }
}
</script>
```

Copy

Note: You can also use ES6 shorthand. Since the data property and value have the same name, you can just use `planetChartData` instead of `planetChartData: planetChartData`.

At this point, Chart.js should be installed and the chart's data should be imported into the `PlanetChart` component.

You should already have a `<canvas>` element created in the component's template. At this point, it's time to initialize the chart and write to the `<canvas>`.

Revisit the `PlanetChart` component and add the create the chart in the `mounted()` lifecycle method:

src/components/PlanetChart.vue

```
<script>
import Chart from 'chart.js'
import planetChartData from '../planet-data.js'

export default {
  name: 'PlanetChart',
  data() {
    return {
      planetChartData: planetChartData
    }
  },
  mounted() {
    const ctx = document.getElementById('planet-chart');
    new Chart(ctx, this.planetChartData);
  }
}
</script>
```

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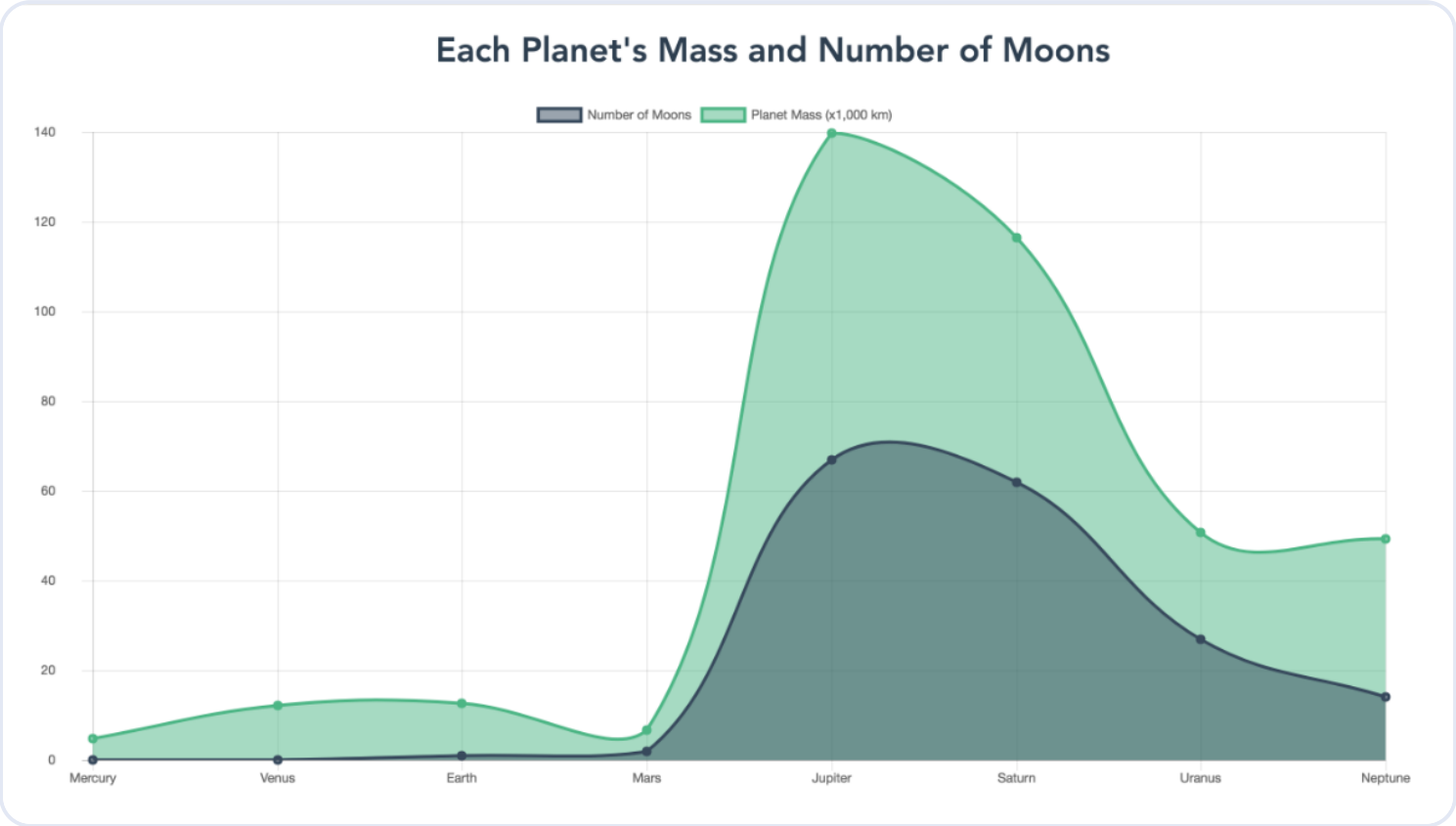
```
$ npm run serve
```

Copy

Open the application in your web browser:



There will be two line charts. One chart displays the number of moons for each planet. THe other chart displays the mass of each planet. The `backgroundColor`, `borderColor`, and `borderWidth` values have affected the appearance of the charts. Interacting with the points on the line will display the `labels`.

Step 4 – Displaying Mixed Charts

Chart.js also supports mixed charts. In this section, you will change the configuration of the charts from line charts to a mix of a line chart for the moon dataset and a bar chart for the mass dataset.

Revisit `planet-data.js` with your code editor. Modify the `type` property of your chart's data and change it to `bar`.

src/planet-data.js

```
export const planetChartData = {
  type: "bar",
  data: { ... },
  options: { ... }
};
```

Copy

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However, you want to display a mix of bar and line graphs. To change this, in each `dataset` object, add a `type` property under the `label` property. For the first `dataset` object, give it a `type` property with a value of `line` and for the second, give it a `type` property with a value of `bar`:

src/planet-data.js

Copy

```
export const planetChartData = {
  type: "bar",
  data: {
    labels: ["Mercury", "Venus", "Earth", "Mars", "Jupiter", "Saturn", "Uranus", "Neptu
    datasets: [
      {
        label: "Number of Moons",
        type: "line',
        data: [0, 0, 1, 2, 79, 82, 27, 14],
        backgroundColor: "rgba(54,73,93,.5)",
        borderColor: "#36495d",
        borderWidth: 3
      },
      {
        label: "Planetary Mass (relative to the Sun x 10^-6)",
        type: "bar",
        data: [0.166, 2.081, 3.003, 0.323, 954.792, 285.886, 43.662, 51.514],
        backgroundColor: "rgba(71, 183,132,.5)",
        borderColor: "#47b784",
        borderWidth: 3
      }
    ]
  },
  options: { ... }
};

export default planetChartData;
```

Save the changes to your file.

Now, you can run your application with your terminal:

Copy

```
$ npm run serve
```

Open the application in your web browser:

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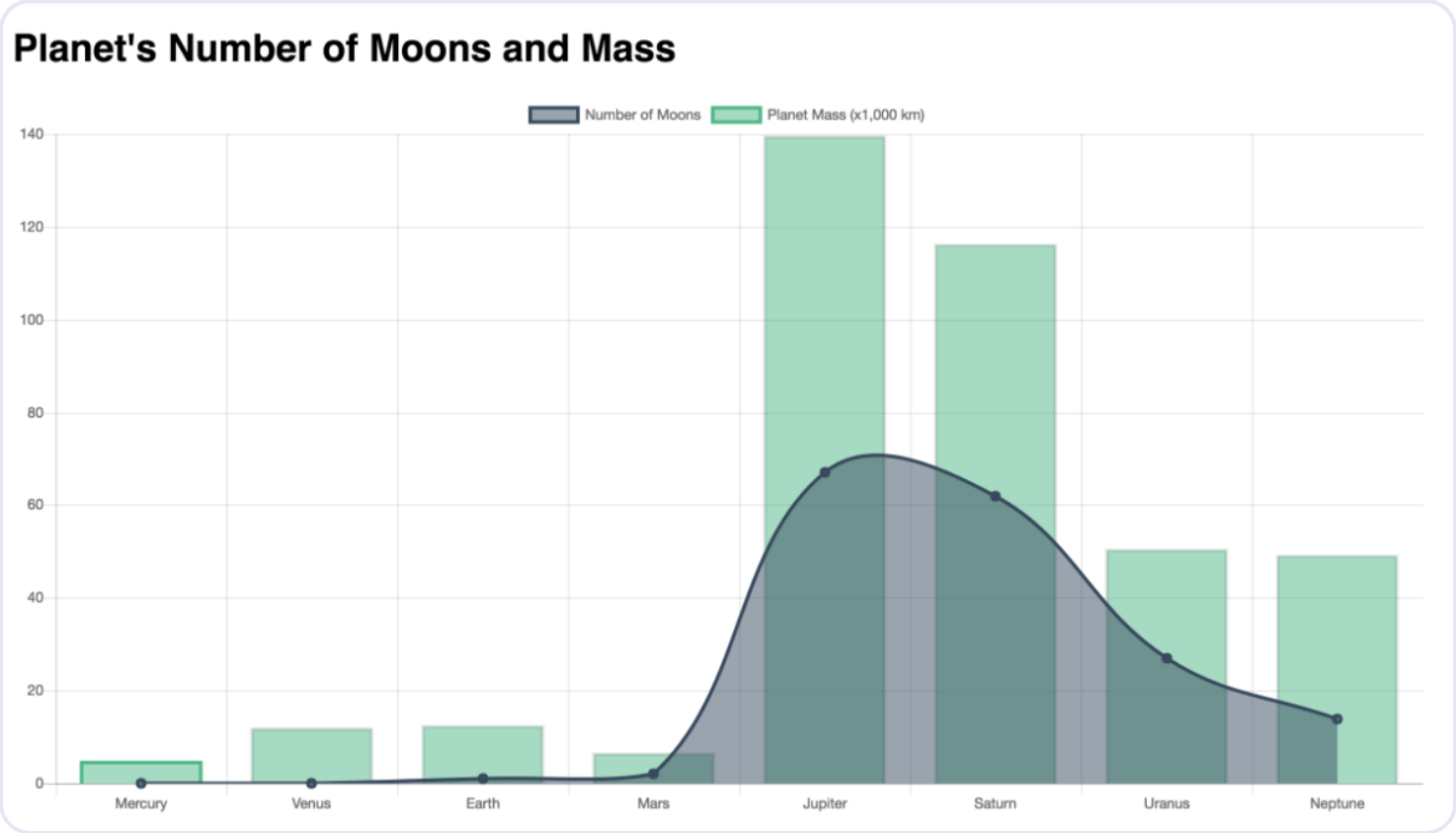

The number of moons for each planet displays as a line chart. The mass of each planet displays as a bar chart.

Conclusion

In this article, you used Chart.js in a sample Vue project to display information about planets in the solar system.

Chart.js can be used for other data visualizations. Explore the samples for inspiration in how it can be incorporated into your projects.

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Dave Berning Author
Developer and Author

I'm a software engineer from Cincinnati. I work on TypeScript apps with Vue.js. Currently a Senior Front-End Engineer at Enodo, based in Chicago.

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Holambro • June 9, 2021

Great walkthrough. Helped me a lot. Just 2 remarks:

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Reply

RyuZebian • April 5, 2021

First off, thank you for a well written guide!

I've been struggling with a variety of errors for days trying to use either v-charts and vue-echarts with echarts, but today I decided to just try Chart.js. This guide was the clearest and to-the-point of many, but I'm currently stuck after following the steps...

npm packages: ├── @vue/cli@4.5.12 ├── @vue/composition-api@1.0.0-rc.6 ├── chart.js@3.0.2 ├── echarts@5.0.2 ├── vue-chartjs@3.5.1 ├── vue-echarts@6.0.0-rc.4 └── vue@2.6.12

Copy pasting your code, I get the error:

"Error in mounted hook: "TypeError: chart_js__WEBPACK_IMPORTED_MODULE_0__.default is not a constructor"

found in

--> <PlanetChart> at src/components/PlanetChart.vue <App> at src/App.vue <Root>"

Do you have any idea what could've gone wrong? :S

Show replies Reply

hottehead • January 20, 2021

Awesome! Thanks a lot. This works with vue3! Tried vue-chartjs package and it does not support vue3. So this saved me.

Show replies Reply

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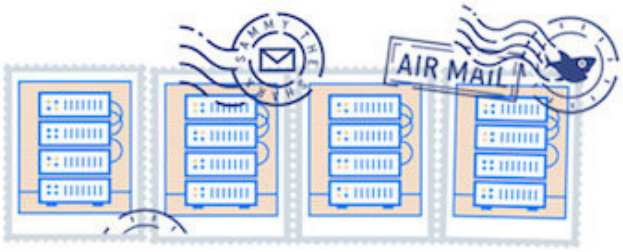

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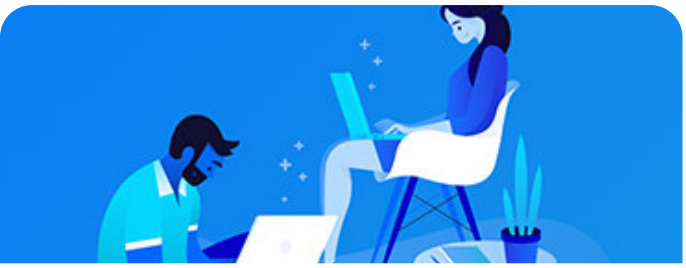

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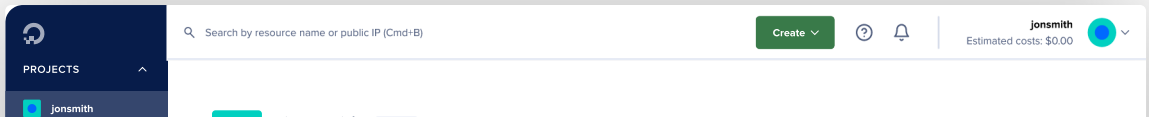

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