**D3 Review**

D3 is an open-source JavaScript library initially developed by Mike Bostock. Data represented by D3 is in the form of HTML and SVG objects, subjected to inline styles or CSS stylesheets. It is very versatile in the sense that D3 can be used to render any artifact which can be rendered using SVG. SVG in itself is a well established format. SVG can display wide variety of quite complex images which are resolution independent. Intuitively, SVG is also the output format of D3 renderings.

D3 derives its strength from using DOM(Document Object Model) elements within the browser for visualizing data. Since DOM elements can be interacted with directly, creating interactions and manipulating data on the fly with D3 is very easy as compared to various other libraries. Other advantages of using DOM elements which D3 provides is, the powerful object selection APIs; support for automatic object creation and destruction based on input data. This makes generating dynamic graphs on the fly with D3 a breeze.

However, D3 can only be used to render 2D images. Visualizing something without a hard boundary, such as most fluid systems, is not possible with D3. It is a library and not a tool, which can create and manipulate DOM objects. Hence, there is no specific input format which D3 uses. It can read csv, json and strings which are directly supported by javascript. Still, a mapping is required for data binding with corresponding visual elements. This mapping can be defined via its powerful data, enter, exit and update APIs. Once the mapping is defined most of the data updates are reflected automatically.

D3 is an excellent library for generating somewhat complex 2D visualizations. This library is very easy to use and allow for quick prototyping. It has excellent support for dynamic data update and object interactions but fall short when more complex visualizations are required.