

What About Having a “Google” for Your Study Data?

R-Shiny-based Customized Data Viewer and Search Engine

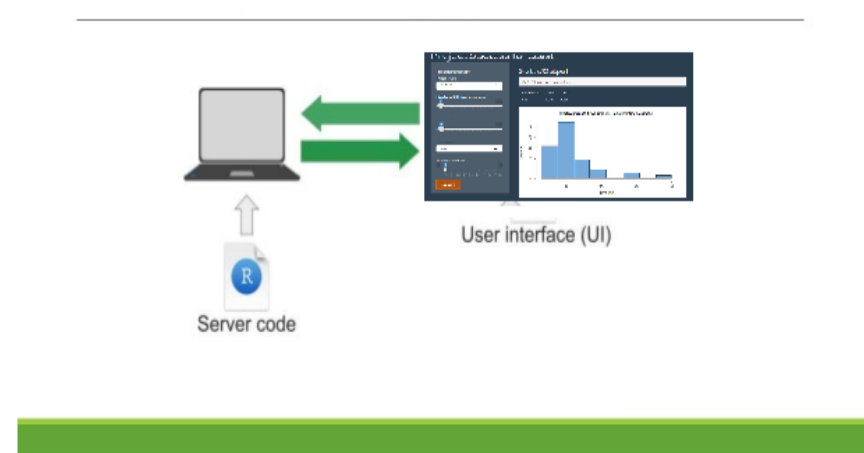
Hrideep Antony, Principal Statistical Programmer, Syneos Health
Aman Bahl, Associate Director, Syneos Health



Introduction

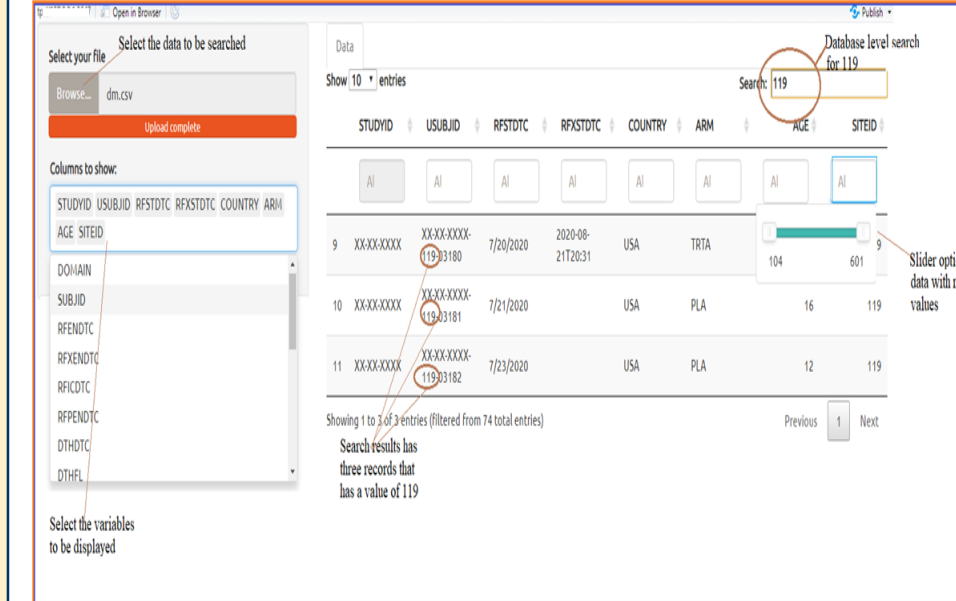
- This poster introduces an R-Shiny application that not only creates the results dynamically but also facilitates search at both database and variable level.
- The application allows the user to select the variables that need to be displayed. It also gives the user control over the number of records to be displayed beside the ability to search the data.
- This search application supports multiple source formats such as .csv, .xls, .sas7bdat, etc.
- This R-Shiny based application uses function called “datatable()” which facilitates the search and filter options. The datatable function is from an R package named DT that provides an R interface to the Javascript library and creates an HTML search widget that displays the data (a matrix or data frame).

R-Shiny application components



- Shiny is an R package that allows application development and comes as a built-in package available through CRAN that interacts well with RStudio. Shiny applications can be deployed as a webpage or a standalone desktop tool to view interactive data or perform statistical analysis.
- UI.R: The function that builds the appearance and assembles the HTML user interface of the application.
- Server Code: The function with instructions on how to execute and rebuild the objects displayed in UI. It also contains the algorithms or models that builds upon data.

R-Shiny Search application



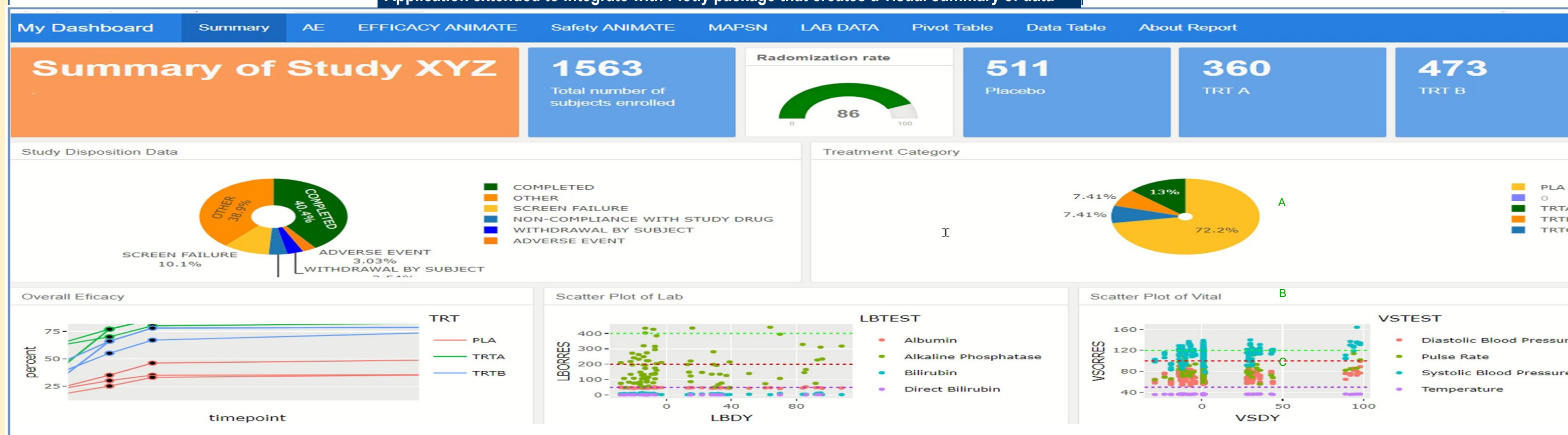
- The viewer conducts a dynamic search across all the columns that are being selected for the text (eg: 119) that is entered inside the “search” tab.
- The search results are displayed as and when the text is typed without waiting for the user to hit “enter” or “submit”. This feature makes this viewer a very powerful utility especially because the users start seeing the search results at the very first keystroke without having to finish the text.
- Such a search mechanism is handy when the database involves free text eg: searching for an uncoded medication term or an adverse event term.

DT package and datatable library

- DT package is an interface to the JavaScript library “Datatables” based on the html widget framework.
- This package can present rectangular R data objects (such as data frames and matrices) as HTML tables. Using the datatable function we can filter, search, and sort the data in the table.
- DataTables comes with a global search box by default to which column filters can be added using the filter argument.
- For numeric/date/time columns, range sliders are used to filter rows within ranges which is very useful for filtering numeric

```
datatable(  
  data,  
  options = list(),  
  class = "display",  
  callback = JS("return table;"),  
  rownames,  
  colnames,  
  container,  
  caption = NULL,  
  filter = c("none", "bottom", "top"),  
  escape = TRUE,  
  style = "auto",  
  width = NULL,  
  height = NULL,  
  elementId = NULL,  
  fillContainer = getOption("DT.fillContainer", NULL),  
  autoHideNavigation = getOption("DT.autoHideNavigation", NULL),  
  selection = c("multiple", "single", "none"),  
  extensions = list(),  
  plugins = NULL,  
  editable = FALSE  
)
```

Application extended to integrate with Plotly package that creates a visual summary of data



References

Reimagining Statistical Reports with R Shiny
<https://www.lexjansen.com/pharmasug/2019/AD/PharmaSUG-2019-AD-048.pdf>

Contact

Your comments and questions are valued and encouraged. Contact the authors at:

Hrideep Antony
+1-984 459 4785
Hrideep.Antony@syneoshealth.com

Aman Bahl
+1-905 399 6715
Aman.Bahl@syneoshealth.com