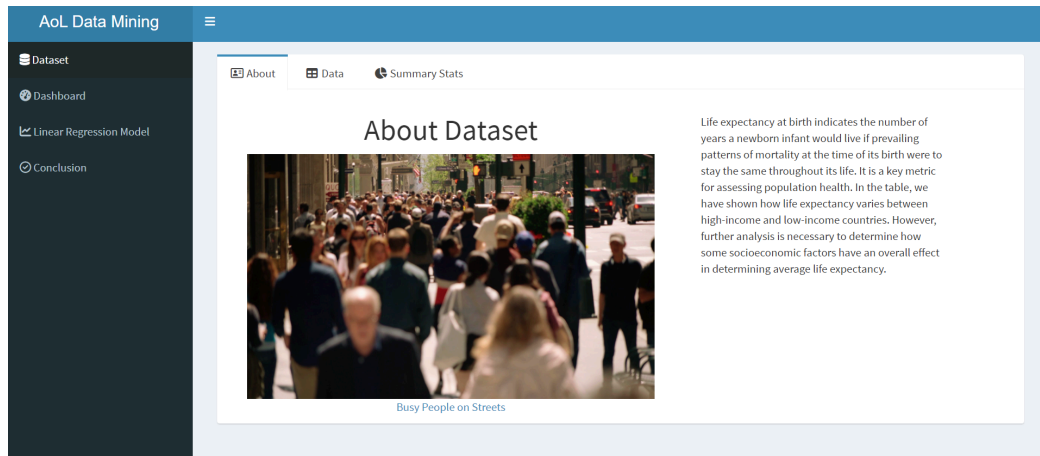# Shiny Dashboard Report

a. Dataset

The dataset section is designed to provide users with a comprehensive overview of the life expectancy dataset and facilitate an in-depth exploration of the data.

i. About Dataset


```
tabPanel("About", icon = icon("address-card"),
        fluidRow(
            column(width = 7, h1("About Dataset"),
                    tags$img(src = "life_expectancy.jpg", width = 500, height = 300),
                    tags$br(),
                    tags$a("Busy People on Streets"), align = "center"),
            column(width = 4, tags$br(),
                    tags$p("Life expectancy at birth indicates the number of years a newborn
y at the time of its birth were to stay the same throughout its life. It is a key
 population health. In the table, we have shown how life expectancy varies between high-incon
lysis is necessary to determine how some socioeconomic
all effect in determining average life expectancy.")
            )
        )
    ),
```

The "About" tab explained briefly about the dataset used, ensuring users have a clear understanding of its context and significance.

ii. Dataset Table


```r
tabPanel("Data", icon = icon("table"),
        fluidPage(
          titlePanel("Life Expectancy Data by Region"),
          sidebarLayout(
            sidebarPanel(
              selectInput("inRegion", "Select a region",
                          choices = c("All", unique(life_expectancy_data$Region)))
            ),
            mainPanel(
              style = "height: 400px; overflow-x: scroll;",
              tableOutput("lifeExpectancyData")
            )

# Render life expectancy data
output$lifeExpectancyData <- renderTable({
  if (input$inRegion == "All") {
    life_expectancy_data
  } else {
    subset(life_expectancy_data, Region == input$inRegion)
  }
})
```

The "Data" tab allows users to interact with the raw dataset. Users can select a specific region from a dropdown menu to filter the data and view relevant records in a table format.

iii. Summary Stats

```
tabPanel("Summary Stats", icon = icon("chart-pie"),
        div(class = "verbatim-box", verbatimTextOutput("summary"))
)


# Render life expectancy summary
output$summary <- renderPrint({
  life_expectancy_data %>%
    summary()
})
```
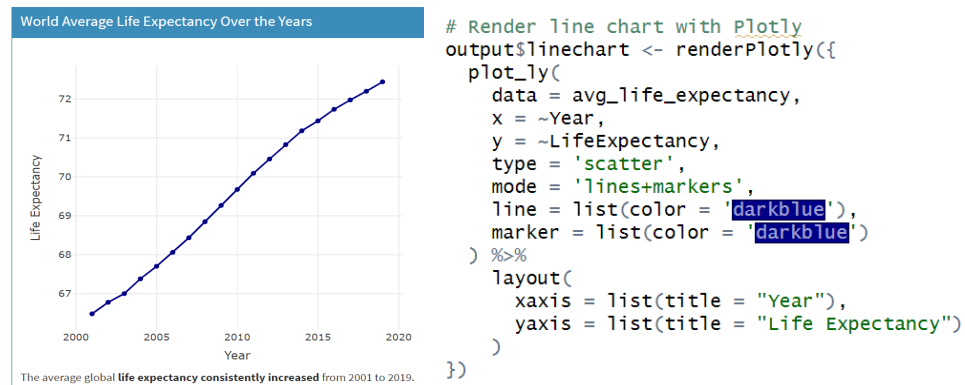
The "Summary Stats" tab provides a statistical summary of the dataset, displaying essential metrics such as mean, median, minimum, and maximum values for each variable.
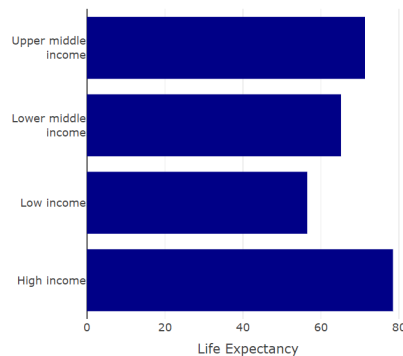
b. Dashboard

i.   Average Life Expectancy Over the Years


```
# Render line chart with Plotly
output$linechart <- renderPlotly({
  plot_ly(
    data = avg_life_expectancy,
    x = ~Year,
    y = ~LifeExpectancy,
    type = 'scatter',
    mode = 'lines+markers',
    line = list(color = 'darkblue'),
    marker = list(color = 'darkblue')
  ) %>%
    layout(
      xaxis = list(title = "Year"),
      yaxis = list(title = "Life Expectancy")
    )
})
```

Line chart showing the global average life expectancy over the years.

ii. Bar Chart Life Expectancy Based on Income Group


```
# Render line chart with Plotly
output$linechart <- renderPlotly({
  plot_ly(
    data = avg_life_expectancy,
    x = ~Year,
    y = ~LifeExpectancy,
    type = 'scatter',
    mode = 'lines+markers',
    line = list(color = 'darkblue'),
    marker = list(color = 'darkblue')
  ) %>%
    layout(
      xaxis = list(title = "Year"),
      yaxis = list(title = "Life Expectancy")
    )
})
```

Bar chart showing the average life expectancy based on income group.

iii. Average Life Expectancy Distribution Across Regions
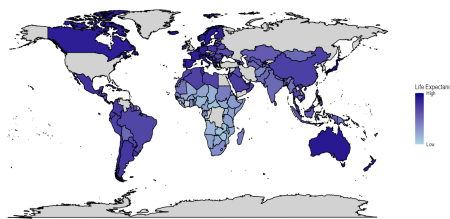

```
output$mapchart <- renderPlot({
  ggplot(mapdata, aes(x = long, y = lat, group = group, fill = LifeExpectancy)) +
    geom_polygon(color = "black") +
    scale_fill_gradientn(
      name = "Life Expectancy",
      colors = c("lightblue", "darkblue"),
      na.value = "lightgray",
      breaks = c(min(mapdata$LifeExpectancy, na.rm = TRUE), max(mapdata$LifeExpectancy, na.rm = TRUE)),
      labels = c("Low", "High")
    ) +
    theme(
      axis.line = element_blank(),
      axis.text = element_blank(),
      axis.title = element_blank(),
      axis.ticks = element_blank(),
      plot.title = element_blank(),
      panel.background = element_rect(fill = "white"),
      legend.position = "right"
    )
})
```

Map chart showing average life expectancy across regions.

## iv. Correlation Plot Between Numerical Variables
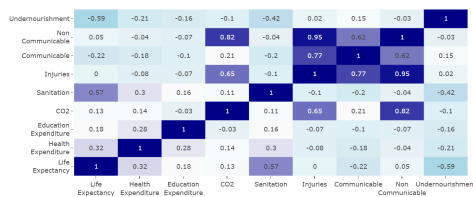

```
output$corrtest <- renderPlotly({
  plot_ly(
    data = corr_data,
    x = ~Var1,
    y = ~Var2,
    z = ~value,
    type = 'heatmap',
    colorscale = list(c(0, "lightblue"), c(0.5, "white"), c(1, "darkblue")),
    text = ~round(value, 2),
    texttemplate = '%{text}',
    hovertemplate = "Variable 1: %{x}<br>Variable 2: %{y}<br>Correlation: %{z}<extra></extra>",
    showscale = TRUE
```

Correlation map showing corr score of every numerical variable in the dataset.

c. Linear Regression Model
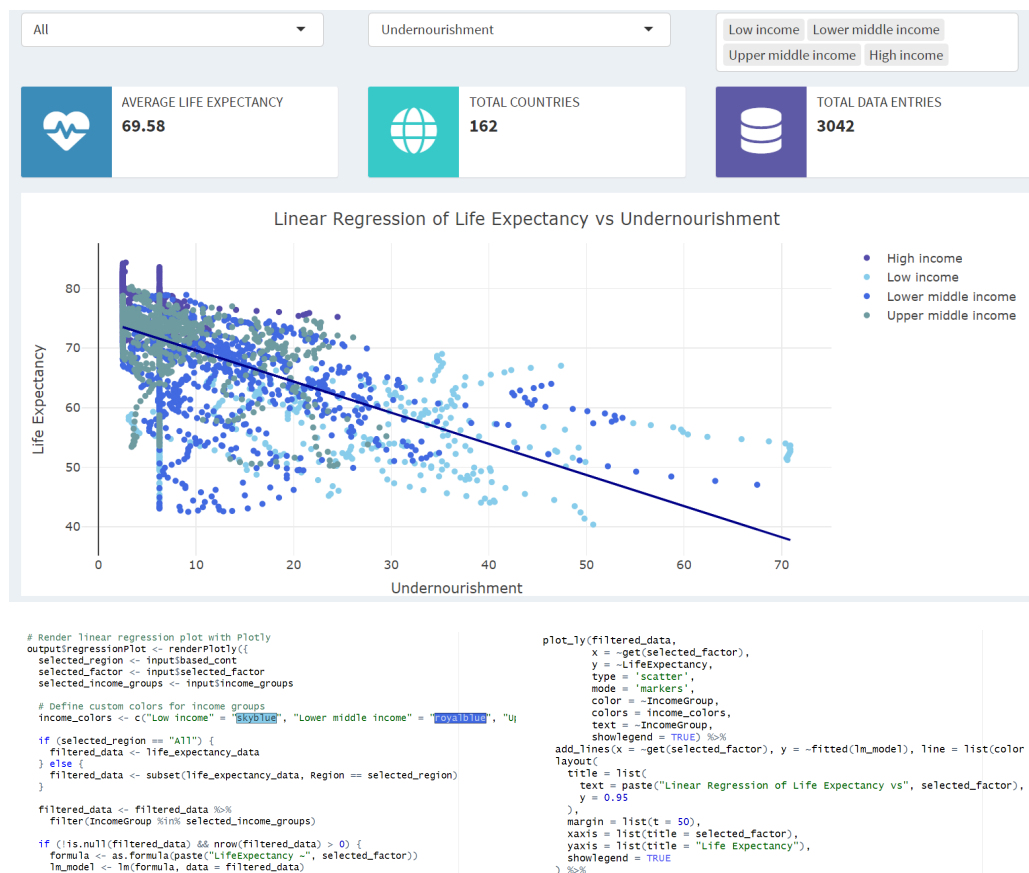
The Linear Regression Model section allows users to explore how different factors influence life expectancy through regression analysis. Users can select a continent, a factor for regression, and specific income groups to see the analysis to their interests.

d. Conclusion

The Conclusion section summarizes the key findings and comprehensive overview of the insights gained from the data analysis.