

Data: Data frame input by user

Result: Interactive litre plot

```
/* Declare Shiny server
server ← function(input, output, session){
  /* User input options
  observeEvent(input$goButton, values$x ← values$x + 1)
  observeEvent(input$selPair, values$x ← 0)
  observeEvent(input$selMetric, values$x ← 0)
  observeEvent(input$selOrder, values$x ← 0)
  observeEvent(input$binSize, values$x ← 0)

  /* Create reactive expression of plotly background litre plot
  gP ← reactive(p ← ggplot(data); gP ← ggplotly(p))

  /* Declare shiny output litre plot
  output$litrePlot ← renderPlotly({
    /* Create reactive expression of plotly background litre plot
    plotlyLitre ← reactive(gP())

    /* Tailor interactivity of the plotly litre plot object using custom JavaScript
    plotlyLitre() %>% onRender("function(el, x, data){
      /* Read handle called 'points' to obtain variables sent from R into JavaScript
      Shiny.addCustomMessageHandler('points', function(drawPoints){
        /* Delete any old superimposed plotly geoms (dots)
        if (x.data.length > 0){Plotly.deleteTraces(el.id)}

        /* Create traces for selected gene IDs as points that state gene names upon hovering
        trace = {x: drawPoints.geneX, y: drawPoints.geneY, mode: 'markers', color: drawPoints.pointColor, size:
          drawPoints.pointSize, text: drawPoints.geneID, hoverinfo: 'text'}

        /* Superimpose traces onto the plotly litre plot object
        Plotly.addTraces(el.id, trace)
      })
    })
  })

  /* If the user changes their input, store information about new superimposed genes with a handle called 'points'.
  These values can then be sent from R to JavaScript
  observe({session$sendCustomMessage(type = "points", message=list(geneX=geneX, geneY=geneY, pointSize =
    pointSize, geneID=geneID, pointColor=pointColor))})

  /* Declare Shiny output boxplot
  output$boxPlot ← renderPlotly({
    /* Create reactive expression of plotly background boxplot BP ← reactive(ggplot() + geom_boxplot()) ggBP ←
    reactive(ggplotly(BP()))

    /* If the user changes their input, store information about new superimposed genes with a handle called 'lines'.
    These values can then be sent from R to JavaScript
    observe({session$sendCustomMessage(type = "lines", message=list(geneInfo=currGene(), geneID=geneID,
      pointColor=pointColor))})

    /* Tailor interactivity of the plotly boxplot object using custom JavaScript
    ggBP() %>% onRender("function(el, x, data){
      /* Read handle called 'lines' to obtain variables sent from R into JavaScript
      Shiny.addCustomMessageHandler('lines', function(drawLines){
        /* Delete any old superimposed plotly geoms (lines)
        Plotly.deleteTraces(el.id, traceLine)

        /* Create traces for selected gene IDs as lines that state gene names upon hovering
        traceLine = {x: drawLines.geneInfo, y: drawLines.geneInfo, mode: 'lines', color: drawLines.pointColor,
          width: 2, opacity: 0.9; text: drawLines.geneID, hoverinfo: 'text'}

        /* Superimpose traces onto the plotly litre plot object
        Plotly.addTraces(el.id, traceLine)
      })
    })
  })
}
```

S2 Pseudocode: Pseudocode for interactive litre plot