myApp <- function(...){

library(shiny)

library(shinydashboard)

library(shinydashboardPlus)

library(echarts4r)

dat1 <- read.csv("Harbin.csv")

dat1$DATE <- as.Date(dat1$DATE)

ui <- dashboardPage(

title = "积温计算器",

dashboardHeader(title = "积温计算器"),

dashboardSidebar(),

dashboardBody(

tags$style("body { background-color: ghostwhite}"),

box(

"请按照条件输入",

id = "inputbox",

collapsible = TRUE,

closable = TRUE,

dateInput("start.date", "开始播种日期", value = "2012-09-18"),

dateInput("end.date", "收获日期", value = "2013-09-17"),

numericInput("obs", "作物零点温度°C:", 10, min = 0, max = 20),

actionButton("done","确定")

),

br(),

box(

"Box body",

id = "mybox",

collapsible = TRUE,

closable = TRUE,

textOutput("daysmax"),

textOutput("continous\_day"),

textOutput("accumulated\_t"),

textOutput("effective\_a\_t"),

echarts4rOutput("plot")

)

)

)

server <- function(input, output, session) {

observeEvent(input$done, {

date\_range <- reactive(subset(dat1,

DATE>=input$start.date&

DATE<=input$end.date))

date\_range <- isolate(date\_range())

plant\_zero <- isolate(input$obs)

days <- which(date\_range$TAVG>=plant\_zero)

day\_count <- length(days )

output$daysmax <- renderText(

paste("大于生物学零点的总数为:",day\_count,"天")

)

max\_day <- max\_day\_rec <- 1

for(i in 2:day\_count)

{

if(days[i]==days[(i-1)]+1)

{

max\_day <- max\_day+1

start\_p <- i-max\_day+1

}

else if(max\_day!=1)

{

if(max\_day>max\_day\_rec)

{

max\_day\_rec<- max\_day

start\_p\_rec <- start\_p

max\_day <- 0

}

}

}

# output2 maximum consecutive days

final\_day <- max(max\_day,max\_day\_rec)

output$continous\_day <- renderText(

paste("大于生物学零点的最长连续天数为:",final\_day,"天")

)

start\_point <- ifelse(max\_day>max\_day\_rec,

start\_p,

start\_p\_rec)

start\_point\_date <- date\_range$DATE[days[start\_point]]

end\_point\_date <- date\_range$DATE[days[(start\_point+final\_day-1)]]

ac\_temp <- sum(date\_range$TAVG[

date\_range$DATE>=start\_point\_date&date\_range$

DATE<=end\_point\_date])

output$accumulated\_t <- renderText(

paste("积温:",ac\_temp,"°C")

)

effective\_a\_t <- ac\_temp-final\_day\*plant\_zero

output$effective\_a\_t <- renderText(

paste("有效积温:", effective\_a\_t,"°C")

)

output$plot <- renderEcharts4r({

req(!input$mybox$collapsed)

yearMonthDate <- htmlwidgets::JS('function (value) {

var monthShortNames = ["一月", "二月", "三月", "四月", "五月", "六月",

"七月", "八月", "九月", "十月", "十一月", "十二月"

];

var d = new Date(value);

var datestring = monthShortNames[d.getMonth()] + " "

var datestring = d.getFullYear() + " " + monthShortNames[d.getMonth()] + " "

return datestring

}')

avg <- list(

type = "average",

name = "AVG"

)

date\_range|>

e\_charts(DATE)|>

e\_line(TAVG)|>

e\_mark\_area('TAVG',data = list(

list(xAxis = start\_point\_date,yAxis=plant\_zero),

list(xAxis = end\_point\_date,yAxis=max(dat1$TAVG),

title = "最大连续积温区域")

),

itemStyle = list(color = "lightgreen"))|>

e\_mark\_line(data = list(yAxis = plant\_zero),

title = "生物学下限温度",

itemStyle = list(color = "red")) |>

e\_format\_y\_axis(suffix = "°C")|>

e\_axis\_labels(

x = "日期",

y = "日均气温"

)|>

e\_x\_axis(

DATE,

axisPointer = list(show = TRUE),

axisLabel = list(

rotate = 45,

formatter = yearMonthDate

))|>

e\_tooltip(trigger = "axis")|>

e\_datazoom(

type = "slider",

toolbox = FALSE,

bottom = -5

)

})

output$box\_state <- renderText({

state <- if (input$mybox$collapsed) "collapsed" else "uncollapsed"

paste("My box is", state)

})

})

}

shinyApp(ui, server)

}