# Optimal Portfolio Program

**Installing the program**

* Place the program’s folder into your Rstudio’s working directory. To know what’s your working directory use the command :

*getwd()*.

* Install the packages Quandl and Shiny. To do so type the following in the R console:

install.packages(“Quandl”)  
install.packages(“shiny”)

* Source the file Optimal\_Portfolio.R that contains all the functions used by the program (you can find that file in the optimal\_portfolio folder)
* Load the Quandl and Shiny libraries. To do so enter the following in the console:

library(Quandl)  
library(shiny)

* Launch the app. To do so use the following command

runApp(“optimal\_portfolio”)

**How to use the program**

* You will first need to select the stocks that will compose your risky portfolio. You can select some stocks from the asx 200. You have to select at least 2 stocks.
* You have to input the risk free rate. By default it’s 1%.
* You choose how you want the expected returns of the stocks to be calculated.

Randomly generated  
computed from historical data  
Inputted by the user himself

If you choose the last option make sure to input every expected return.

* Click on the launch button. It can take several minutes before displaying the result especially if you choose a lot of stocks for your risky portfolio. For the moment no loading screen has been implemented but the computation starts as soon as the user click on “launch”.
* Finally a graph is displayed with values concerning the complete portfolio.
* You can use the slider bar to move your complete portfolio on the Capital Asset Line and see how it affects its risk and expected return.

**Known issues**

* The program might not recognize the function: Quandl.api\_key  
  temporary solution: add a “#” in the code line 35 in front of the Quandl.api\_key  
  () in the Optimal\_Portfoli.R file.
* The program might crash if the user inputs himself the expected returns of the stocks and set them all equal.