VISUAL ANALYTICS INTRODUCTION TO R

TUTORIAL 1

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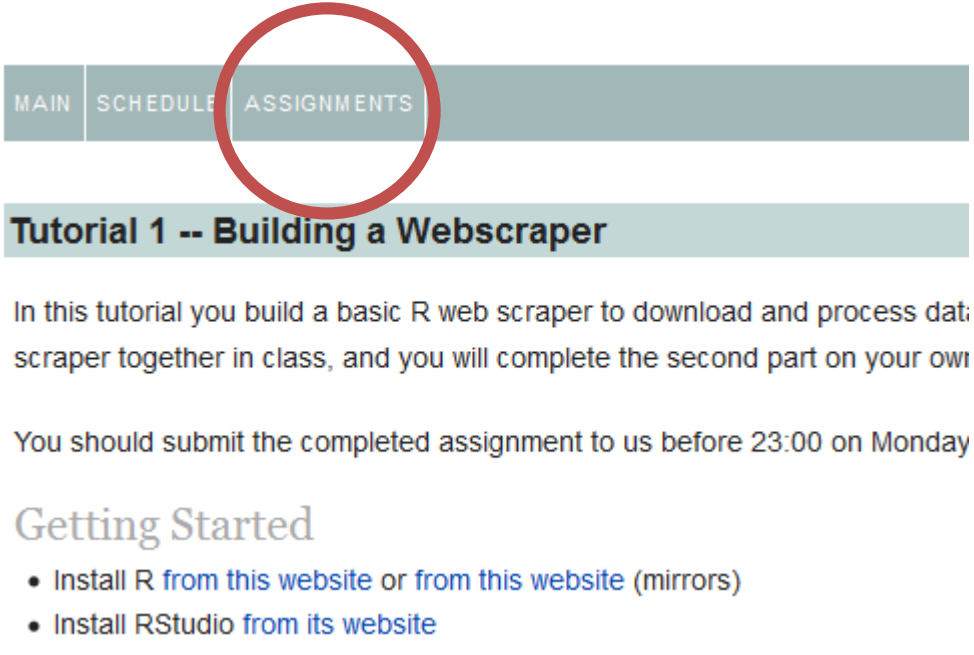
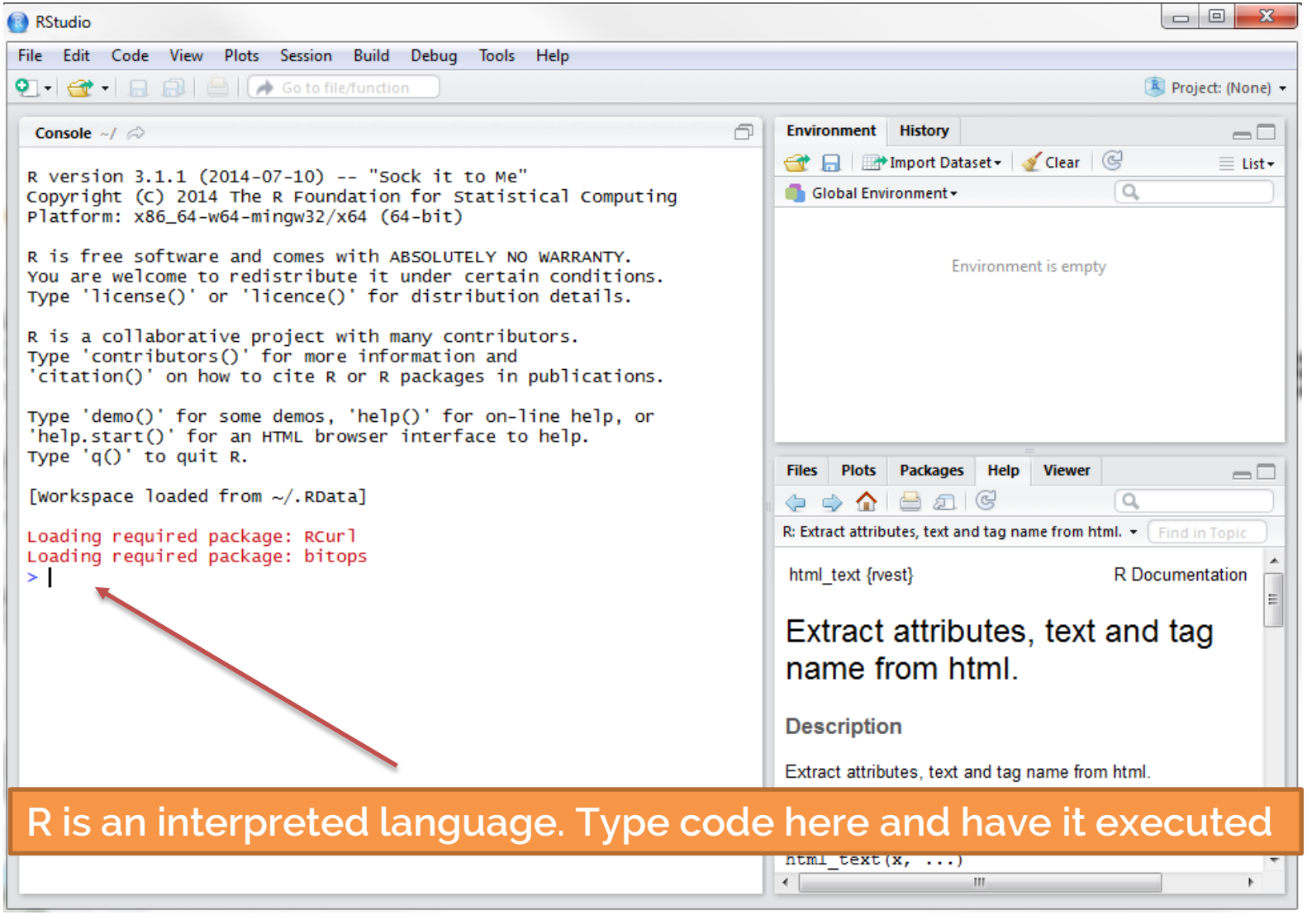
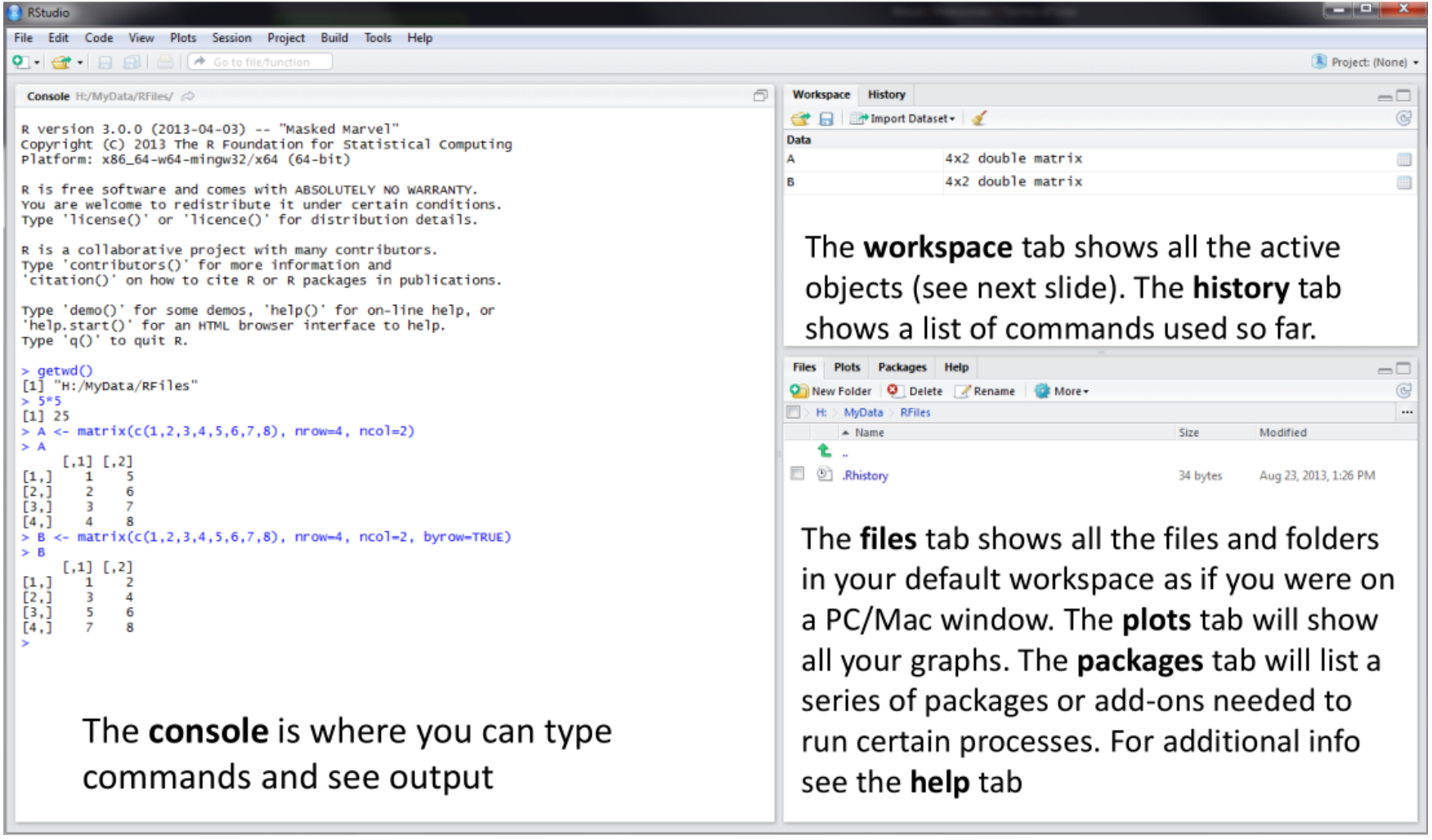
INSTALLATION

- http://tinyurl.com/VisualAnalytics2015




RStudio
File Edit Code View Plots Session Build Debug Tools Help
Go to file/function
Project: (None)
Console ~/
R version 3.1.1 (2014-07-10) -- "Sock it to Me"
Copyright (C) 2014 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)
R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.
R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.
[Workspace loaded from ~/.RData]
Loading required package: RCurl
Loading required package: bitops
>
Environment History
Import Dataset
Clear
List
Global Environment
Environment is empty
Files Plots Packages Help Viewer
R: Extract attributes, text and tag name from html.
Find in Topic
html_text {rvest}
R Documentation
Extract attributes, text and tag name from html.
Description
Extract attributes, text and tag name from html.
html_text(x, ...)
R is an interpreted language. Type code here and have it executed



Picture from: http://dss.princeton.edu/training/

HELLO WORLD

- Type into your console

```
> print("Hello world!")

output:
  [1] "Hello world!"
```

QUICK R TUTORIALS

Let's get you to work:

```
> install.packages("swirl")

> library(swirl)
> install_from_swirl("R Programming")
> swirl()
```

Choose "R Programming"

If you are new to R complete the following lessons:
1, 2, 4, 7

If you are already a proficient R user pick a lesson that interests you

```
| When you are at the R prompt (>): |
•  Typing skip() allows you to skip the current question.
   |
•  Typing play() lets you experiment with R on your own;
   swirl | will ignore what you do... |
•  UNTIL you type nxt() which will regain swirl's
   attention. |
•  Typing bye() causes swirl to exit. Your progress will
   be | saved. |
•  Typing main() returns you to swirl's main menu. |
•  Typing info() displays these options again.
```

DATA ANALYSIS

Challenge

MAYHEM AT DINOFUN WORLD

- DinoFun World is a typical modest-sized amusement park
- One event last year was a weekend tribute to Scott Jones, internationally renowned football star.

MAYHEM AT DINOFUN WORLD

- Scott was scheduled to appear in two stage shows each on Friday, Saturday, and Sunday to talk about his life and career.
- In addition, a show of memorabilia related to his illustrious career would be displayed in the park's Pavilion.
- However, the event did not go as planned. Scott's weekend was marred by crime and mayhem perpetrated by a poor, misguided and disgruntled figure from Scott's past.

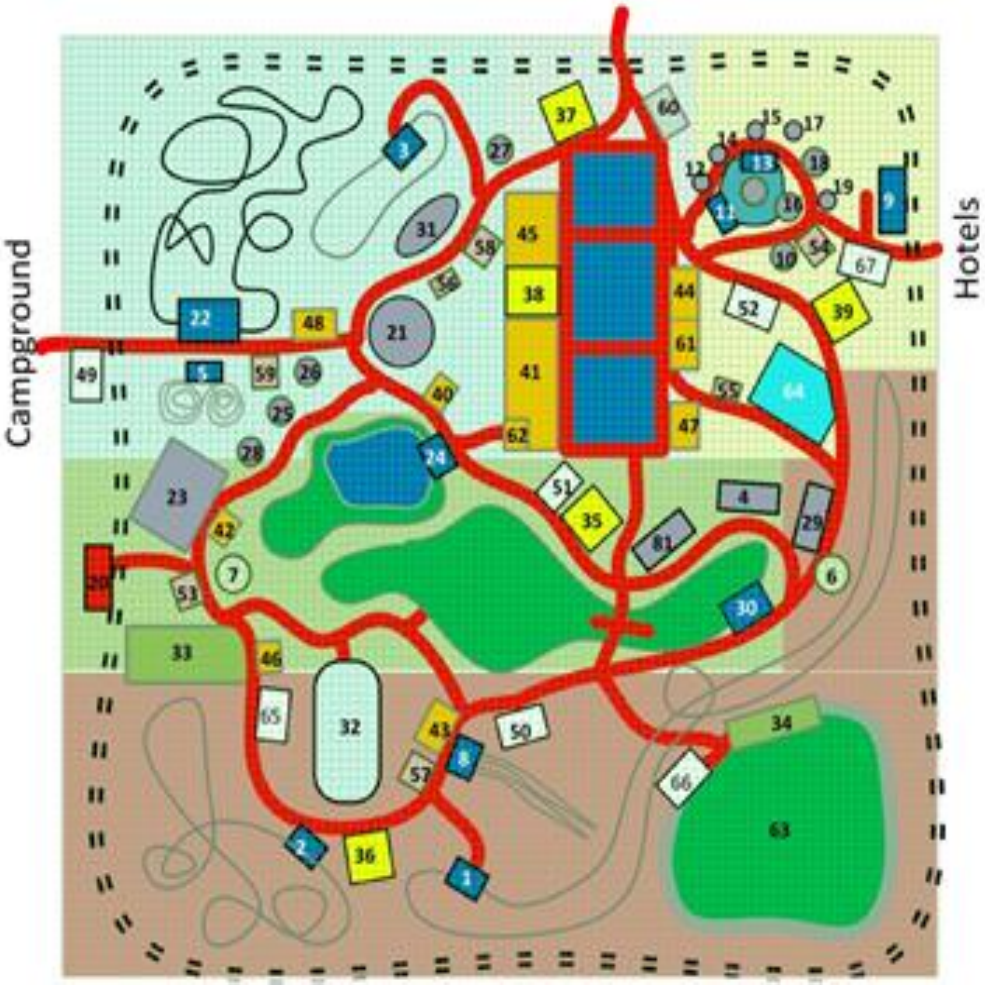
MAYHEM AT DINOFUN WORLD

While the crimes were rapidly solved, park officials and law enforcement figures are interested in understanding just what happened during that weekend to better prepare themselves for future events. They are interested in understanding how people move and communicate in the park, as well as how patterns changes and evolve over time, and what can be understood about motivations for changing patterns.

CHALLENGE DATA

- you will be given movement and communication data
- All visitors to the park (except for very young children) use a park app to check in to the park and rides and to communicate with fellow visitors. If visitors do not have compatible phones, they are provided with loaner devices. Visitors are assigned IDs and must use the app to check into rides and some other attractions.
- The park is equipped with sensor beacons that record movements within the park. Sensors are sensitive within a 5m x 5m grid cell. All pathways in the park are covered by these sensors, as are the ride check in locations.
- Locations are not recorded while people are on rides or inside attractions (including restaurants, stores, and rest rooms).
- App users may send text messages to anyone within their own designated group (for example, a family could have their own group).
- An app user may also make "a friend" at the park where they can send and receive texts, if both persons accept friend invitations.

Park is 100 x 5 meters = 500 meters wide = 1640 feet
Each square is 5 meters on a side.



- The attractions are numbered and coded according to type (the index to the attractions can be found in the park website).
- The red line indicates the pathway through the park, although dark green areas are also areas where people can move.
- (Attraction 30 in the middle of the map is a water rapids ride, so people can watch from the "inside" of the ride boundaries.
- For other rides, people are not allowed to wander inside of the ride footprint.
- Attraction 63 is a show stage area, so people populate this area during performances).

CHALLENGE

- Can you identify movement and communication patterns in the park?
- Can you identify suspicious/unusual behavior?

- Specific questions will be supplied as we delve deeper into the data