

Lab 1 Exercises:

Part 1:

Let us first familiarize ourselves with R, using the first three modules of Swirl

Follow the following instructions:

1) In R studio console, type the following commands at the R prompt (>):

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

```
> library("swirl")
```

```
> swirl()
```

System will respond as below:

Welcome to swirl!

Please sign in. If you've been here before, use the same name as you did then. If you are new, call yourself something unique.

What shall I call you?

2) Type your name

1: R Programming Functions

2: No. Let me start something new.

3) Select 1

Please choose a lesson, or type 0 to return to course menu.

1: Basic Building Blocks

2: Workspace and Files

3: Sequences of Numbers

4: Vectors

5: Missing Values

6: Subsetting Vectors

7: Matrices and Data Frames

8: Logic

9: Functions

10: lapply and sapply

11: vapply and tapply

12: Looking at Data

13: Simulation

14: Dates and Times

15: Base Graphics

3) Select 1: Basic Building Blocks and follow the instructions, once done select 2: Workspace and Files then finally go through the last module 3: Sequences of Numbers

4) Exit Swirl by typing `bye()` at the command prompt

5) If you need to quit or skip Swirl use the following commands.

| 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.

Part 2

Let us explore some data, using the data sets in the ISwR package.

Follow the following instructions:

1) In R studio console, type the following commands at the R prompt (>):

```
> install.packages("ISwR")
> library(ISwR)
```

First let us build some data.

The body mass index (BMI) is defined for each person as the weight in kilograms divided by the square of the height in meters. This could be calculated as follows:

Type the following commands at the R prompt (>):

```
> weight <- c(60, 72, 57, 90, 95, 72)
> weight
```

You should get

```
[1] 60 72 57 90 95 72
```

Type the following commands at the R prompt (>):

```
> height <- c(1.75, 1.80, 1.65, 1.90, 1.74, 1.91)
> bmi <- weight/height^2
> bmi
```

You should get

```
[1] 19.59184 22.22222 20.93664 24.93075 31.37799 19.73630
```

Second let us use some predefined data. Type the following commands at the R prompt (>):

```
> cars
```

You should get

```
  speed dist
```

```
1    4    2
```

```
2    4   10
```

```
3    7    4
```

```
.....
```

```
.....
```

```
> summary(cars)
```

You should get

```
  speed      dist
```

```
Min.   :4.0    Min.   : 2.00
```

```
1st Qu.:12.0   1st Qu.: 26.00
```

```
Median :15.0   Median : 36.00
```

```
Mean   :15.4   Mean    : 42.98
```

```
3rd Qu.:19.0   3rd Qu.: 56.00
```

```
Max.   :25.0   Max.    :120.00
```