Week-5: Code-along

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II. Code to edit and execute using the Code-along.Rmd file

A. Writing a function

1. Write a function to print a "Hello" message (Slide #14)

```r
# Enter code here
say_hello_to <- function(name) {print(paste0("Hello ", name, "!"))}
```

2. Function call with different input names (Slide #15)

```r
# Enter code here
say_hello_to('Kashif')
```

```
## [1] "Hello Kashif!"
```

```r
say_hello_to('Zach')
```

```
## [1] "Hello Zach!"
```

```r
say_hello_to('Deniz')
```

```
## [1] "Hello Deniz!"
```

3. typeof primitive functions (Slide #16)

```r
# Enter code here
typeof(`+`)
```

```
## [1] "builtin"
```

```
typeof(sum)
```

```
## [1] "builtin"
```

4. typeof user-defined functions (Slide #17)

```
# Enter code here
typeof(say_hello_to)
```

```
## [1] "closure"
```

```
typeof(mean)
```

```
## [1] "closure"
```

5. Function to calculate mean of a sample (Slide #19)

```
# Enter code here
calc_sample_mean <- function(sample_size) {mean(rnorm(sample_size))}
```

6. Test your function (Slide #22)

```
# With one input
calc_sample_mean(1000)
```

```
## [1] -0.01344121
```

```
# With vector input
calc_sample_mean(c(100,300,1000))
```

```
## [1] 0.6272484
```

7. Customizing the function to suit input (Slide #23)

```
# Enter code here
calc_sample_mean <- function(sample_size,our_mean,our_sd){sample <- rnorm(sample_siz
e,mean=our_mean,mean(sample),sd=our_sd)}
```

8. Setting defaults (Slide #25)

```
# First define the function
calc_sample_mean <- function(sample_size, our_mean=0, our_sd=1) {sample<-rnorm(sample
_size,mean=our_mean,sd=our_sd)
mean(sample)}
# Call the function
calc_sample_mean(sample_size = 10)
```

```
## [1] -0.2936968
```

9. Different input combinations (Slide #26)

```
# Enter code here
calc_sample_mean(10,our_sd = 2)
```

```
## [1] 0.5436486
```

```
calc_sample_mean(10,our_mean = 6)
```

```
## [1] 5.951715
```

```
calc_sample_mean(10,6,2)
```

```
## [1] 5.659424
```

10. Different input combinations (Slide #27)

```
# set error=TRUE to see the error message in the output
# Enter code here
calc_sample_mean(our_mean = 5)
```

```
## Error in rnorm(sample_size, mean = our_mean, sd = our_sd): argument "sample_size"
is missing, with no default
```

11. Some more examples (Slide #28)

```
# Enter code here
add_two <- function(x){x+2}
add_two(4)
```

```
## [1] 6
```

```
add_two(-34)
```

```
## [1] -32
```

```
add_two(5.784)
```

```
## [1] 7.784
```

B. Scoping

12. Multiple assignment of z (Slide #36)

```
# Enter code here
z <- 1
sprintf("The value assigned to z outside the function is %d",z)
```

```
## [1] "The value assigned to z outside the function is 1"
```

```
foo <- function(z=2){z<-3
return(z+3)}
foo()
```

```
## [1] 6
```

13. Multiple assignment of z (Slide #37)

```
# Enter code here
z <- 1
foo <- function(z=2){z<-3
return(z+3)}
foo(z=4)
```

```
## [1] 6
```

```
sprintf("The final value of z after reassigning it to a different value inside the fu
nction is %d",z)
```

```
## [1] "The final value of z after reassigning it to a different value inside the fun
ction is 1"
```

```
## [1] "The final value of z after reassigning it to a different value inside the fun
ction is 1"
```