class06_david_ma

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Importing example student vectors

```
student1 <- c(100, 100, 100, 100, 100, 100, 100, 90)
student2 <- c(100, NA, 90, 90, 90, 90, 97, 80)
student3 <- c(90, NA, NA, NA, NA, NA, NA, NA)
```

Q1: Creating grade() function

```
grade <- function(student_grade) {
  # Replacing NA's with 0's
  student_grade[is.na(student_grade)] <- 0

  # Finding the index of the lowest grade
  lowest_index <- which.min(student_grade)

  # Dropping the lowest grade by removing this index
  student_grade <- student_grade[-lowest_index]

  # Taking the average of the updated student homework
  student_average <- mean(student_grade)

  # Give back the average
  return(student_average)
}

# Testing function on example students
grade(student1)
```

```
[1] 100
```

```
grade(student2)
```

```
[1] 91
```

```
grade(student3)
```

```
[1] 12.85714
```

Q2: Top scoring student

```
# Reading in the supplied gradebook
url <- "https://tinyurl.com/gradeinput"
all_student_grade <- read.csv(url, row.names = 1)

# Applying my grade function to the gradebook and assigning it to an object
student_scores <- apply(all_student_grade, 1, grade)

# Obtaining the index of the maximum grade
high_index <- which.max(student_scores)

# Give the highest scoring student
student_scores[high_index]
```

```
student-18
      94.5
```

Q3: Toughest homework assignment

```
# Replace NAs with 0's
all_student_grade_zeroes <- replace(all_student_grade, is.na(all_student_grade), 0)

# Calculate averages of each homework assignment
hw_averages <- colMeans(all_student_grade_zeroes)

# Give back the lowest scoring homework assignment through indexing
smallest_index <- which.min(hw_averages)
colnames(all_student_grade)[smallest_index]
```

```
[1] "hw2"
```

Q4: Homework Correlation

```r
# Using student_scores from Q2 to determine correlation
correlations <- apply(all_student_grade_zeroes, 2, cor, y = student_scores)

# What's my max?
cor_index <- which.max(correlations)
correlations[cor_index]
```

```
      hw5
0.6325982
```