Class 6

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Example input vectors to start with

```
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)
which.min(student2)
```

```
## [1] 8
```

```
student2[-which.min(student2)]
```

```
## [1] 100  NA  90  90  90  90  97
```

```
mean(student2[-which.min(student2)],na.rm=TRUE)
```

```
## [1] 92.83333
```

```
## which.min will provide an index where the minimun value is providied in the array. na.rm = True is r
```

```
## Q1 compute the average grade of the student input
Grade <- function(student) {
  ## assigning any of the Na to 0
  if (any(is.na(student))){
    student[is.na(student)]=0
  }
  ## remove one minimun value (such as 0)
  ## calcualte mean value
  return(mean(student[-which.min(student)]))

}
```

```
mean(na.omit(student2))
```

```
## [1] 91
```

```
mean(student2, na.rm=TRUE)
```

```
## [1] 91
```

```
Grade(student3)
```

```
## [1] 12.85714
```

```
## Copying all the student values into here
data1 <- read.csv("/Users/chan-yukuo/Desktop/BIMM143/Lab6/student_homework.csv", row.names=1)
which.max(apply(data1,1,Grade))
```

```
## student-18
```

```
##          18
```

```r
results <- apply(data1,1,Grade)
###apply(X, MARGIN, FUN)
## Margin =1 means claulcate the maxtrix x in row
### Q2 94.5 student 18 have the highest score
```

```r
hw_Grade <- function(hw) {
  ## assigning any of the Na to 0
  if (any(is.na(hw))){
    hw[is.na(hw)]=0
  }
  ## remove one minimun value (such as 0)
  ## calcualte mean value

  return(mean(hw))

}
```

```r
which.min(apply(data1,2,hw_Grade))
```

```
## hw2
##   2
```

```r
apply(data1,2,hw_Grade)
```

```
##   hw1   hw2   hw3   hw4   hw5
## 89.00 72.80 80.80 85.15 79.25
```

```r
## Does not remove the lowest value of the whole hw.
## q3: hw2 is the hardest
```

```r
## Q4 Look at the correlation of each hw
data1[is.na(data1)]=0
cor(results,data1$hw5)
```

```
## [1] 0.6325982
```

```r
apply(data1,2,cor,y=results)
```

```
##       hw1       hw2       hw3       hw4       hw5
## 0.4250204 0.1767780 0.3042561 0.3810884 0.6325982
```

```r
## specifying the y input of the cor
```