class06

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```
grade<-function(arr){
#parses the array to remove NA and changes them to 0
arr[is.na(arr)]<-0
# assign index to the index of the minimum of the arr
index <-which.min(arr)
#create an adjusted arr without the minimum score
adjusted <- arr[-index]

#apply mean function to return the average grade
mean(adjusted)
}

# 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)
# read in the csv
df<-read.csv("https://tinyurl.com/gradeinput",row.names=1)
# apply the function to each row removing the names of the students
grades<-apply(df,1,grade)
print(grades)
```

```
 student-1  student-2  student-3  student-4  student-5  student-6  student-7
     91.75      82.50      84.25      84.25      88.25      89.00      94.00
 student-8  student-9 student-10 student-11 student-12 student-13 student-14
     93.75      87.75      79.00      86.00      91.75      92.25      87.75
student-15 student-16 student-17 student-18 student-19 student-20
     78.75      89.50      88.00      94.50      82.75      82.75
```

```
which.max(grades)
```

```
student-18
        18
```

Q2 The top scoring student is student 18

```
Assignments<-apply(df,2,sum,na.rm=TRUE)
print(Assignments)
```

```
 hw1  hw2  hw3  hw4  hw5
1780 1456 1616 1703 1585
```

```
which.min(Assignments)
```

```
hw2
  2
```

Q3 based on this analysis homework two was the most difficult

Q4

```
mask<-df
mask[is.na(df)]<-0
print(mask)
```

```
           hw1 hw2 hw3 hw4 hw5
student-1  100  73 100  88  79
student-2   85  64  78  89  78
student-3   83  69  77 100  77
student-4   88   0  73 100  76
student-5   88 100  75  86  79
student-6   89  78 100  89  77
student-7   89 100  74  87 100
student-8   89 100  76  86 100
student-9   86 100  77  88  77
student-10  89  72  79   0  76
student-11  82  66  78  84 100
student-12 100  70  75  92 100
student-13  89 100  76 100  80
student-14  85 100  77  89  76
student-15  85  65  76  89   0
```

```
student-16  92 100  74  89  77
student-17  88  63 100  86  78
student-18  91   0 100  87 100
student-19  91  68  75  86  79
student-20  91  68  76  88  76
```

```r
apply(mask,2,cor, y=grades)
```

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

Homework 5 has the greatest correlation score