```
rm(list=ls())
getwd()
```

```
## [1] "/home/gquinn/Desktop/html/stonehill/SURE/Summer2015/NURE2015"
```

```
files=list.files("experiment4")
str(files)
```

```
##  chr [1:100] "experiment4_sample70_06242015210957.Rdata" ...
```

```
n=length(files)
print(n)
```

```
## [1] 100
```

```
#files
for (i in 1:n){
  fname=paste("experiment4/",files[[i]],sep="")
  load(fname)
  ls()
  if(i==1){
    df=data.frame(rep(c(1,2,3),1+nrow(MCAS_sgp$Panel_Data)/3)[1:nrow(MCAS_sgp$Panel_Data)])
    colnames(df)=c("levels")
  }
  df=cbind(df,MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP)
}
str(df)
```

```
## 'data.frame': 70000 obs. of  101 variables:
##  $ levels                                    : num  1 2 3 1 2 3 1 2 3 1 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  44 29 22 93 91 35 38 44 12 19 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  56 82 30 98 9 45 58 94 11 18 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  35 2 41 84 12 22 24 93 39 12 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 5 31 1 87 51 51 5 23 16 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  35 1 48 92 6 52 16 65 7 1 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 1 16 93 4 52 34 22 15 4 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  55 5 43 87 98 69 59 8 1 9 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  29 3 18 90 2 13 7 53 24 13 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  38 22 27 94 11 22 59 4 14 4 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  49 1 34 89 93 58 11 80 9 9 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  22 24 19 85 10 34 58 70 49 13 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  39 26 27 99 9 66 23 78 1 38 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  67 29 40 92 88 38 14 97 4 18 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  65 10 26 75 2 44 39 65 14 14 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  68 2 15 99 18 45 23 5 28 30 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 5 36 75 2 50 14 89 25 10 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  57 89 29 87 93 24 52 56 7 17 ...
```

```
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  51 96 43 81 87 37 16 78 16 91 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  46 1 30 96 14 34 56 93 11 18 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  23 10 37 80 5 45 35 79 18 10 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  67 23 36 97 89 44 9 78 16 10 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  68 94 26 99 14 52 16 59 66 18 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  54 24 30 81 86 38 16 86 14 18 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  44 97 33 92 12 24 62 88 24 12 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  35 91 25 85 2 48 36 8 19 13 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  65 88 41 78 5 13 58 72 5 21 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  49 89 23 96 1 23 50 61 1 23 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  33 93 40 81 22 22 9 2 40 22 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  68 88 22 96 11 52 14 98 16 4 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  46 13 21 69 82 48 58 90 1 29 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  48 92 27 80 3 48 22 77 16 19 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  68 5 25 62 22 83 24 58 9 33 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  39 98 37 55 1 53 38 4 43 35 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  56 80 27 63 97 37 13 84 24 18 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  38 34 26 94 22 22 24 80 18 26 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 92 29 99 65 52 58 94 35 8 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  64 10 16 91 14 52 9 86 29 97 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  64 85 34 81 94 49 49 70 13 10 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  66 16 34 1 1 35 39 97 16 17 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  44 96 28 89 3 57 39 93 13 12 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  64 3 31 94 2 38 18 78 6 16 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  44 91 23 88 88 22 28 53 28 14 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  44 94 23 61 94 44 51 60 3 23 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  42 1 37 90 16 62 16 54 56 17 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  35 3 20 95 15 51 58 58 5 28 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  34 98 38 1 18 34 38 82 3 4 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  35 98 33 95 28 13 23 74 18 17 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  38 10 23 57 31 49 24 96 51 9 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  56 5 22 91 24 52 38 85 38 12 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  25 2 26 99 13 36 19 84 14 29 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  45 97 18 97 31 61 56 90 3 9 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  53 83 20 41 2 67 37 89 23 14 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 92 27 88 28 33 9 91 19 83 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  24 24 19 72 22 66 37 66 14 8 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  51 4 26 92 1 14 22 80 13 13 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  12 91 19 60 10 48 38 70 24 13 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  55 2 41 31 46 23 46 89 3 22 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  51 73 18 78 2 58 34 5 14 10 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  66 91 37 98 86 22 37 92 13 2 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  33 88 32 93 1 23 39 57 5 5 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  41 2 47 96 24 45 39 80 13 20 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  53 1 18 87 96 66 24 76 98 12 ...
```

```
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 97 53 85 1 58 26 53 26 10 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  67 97 24 83 97 54 23 75 23 19 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 97 30 93 4 83 3 85 16 39 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  22 23 72 57 13 34 46 91 26 27 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  44 86 61 71 16 36 16 5 24 27 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  37 10 30 90 87 23 31 80 16 39 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  51 14 32 88 14 56 27 5 3 10 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  51 20 30 69 93 38 23 88 1 94 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  34 80 34 72 84 48 16 1 56 14 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 16 37 56 88 23 23 53 16 8 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  55 2 30 97 31 49 24 54 2 13 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  61 93 31 2 24 58 49 90 1 26 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  42 99 34 94 10 22 35 78 35 20 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  49 4 19 68 24 53 27 95 35 10 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  65 3 25 75 87 23 44 93 19 12 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 14 37 85 12 35 51 88 5 14 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  32 96 35 60 10 49 4 82 16 96 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  67 20 14 95 1 43 51 80 12 24 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  44 4 25 81 5 13 38 80 23 38 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  61 2 22 46 31 51 61 92 24 16 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  27 84 23 95 46 52 20 89 16 18 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  68 95 22 34 97 66 28 62 58 4 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  68 2 45 85 10 62 66 73 27 13 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  67 10 26 94 95 67 25 67 37 4 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  56 13 19 98 9 36 35 88 18 14 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  39 88 41 97 4 23 23 83 11 22 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 19 20 66 1 48 21 70 7 14 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  35 4 39 82 28 23 7 1 27 16 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  49 95 23 91 20 23 39 89 16 13 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  67 79 22 92 98 22 23 78 25 17 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  12 73 6 90 1 53 39 93 28 98 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  68 19 19 85 27 66 14 87 24 14 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  35 62 20 2 96 48 18 89 1 86 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  62 11 18 91 12 48 26 98 51 22 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  38 87 44 90 86 36 9 97 36 12 ...
##  $ MCAS_sgp$SGPercentiles$MATHEMATICS.2010$SGP: int  37 5 42 95 5 58 58 64 98 4 ...
##   [list output truncated]
```

```
means=apply(df[,2:ncol(df)],1,mean)
sds=apply(df[,2:ncol(df)],1,sd)
levels=as.factor(rep(c(1,2,3),1+length(means)/3))[1:length(means)]
df2=data.frame(levels,means,sds)
str(df2)
```

```
## 'data.frame': 70000 obs. of  3 variables:
##  $ levels: Factor w/ 3 levels "1","2","3": 1 2 3 1 2 3 1 2 3 1 ...
```

```
##  $ means : num  49.5 44.8 29.7 79 34.6 ...
##  $ sds   : num  14.3 40.1 10.4 23.2 36.1 ...

dfs=split(df2,df2$levels)
mean(dfs[[1]]$means)

## [1] 52.97661

sd(dfs[[1]]$means)

## [1] 19.32115

mean(dfs[[2]]$means)

## [1] 49.4933

sd(dfs[[2]]$means)

## [1] 14.62934

mean(dfs[[3]]$means)

## [1] 42.96573

sd(dfs[[3]]$means)

## [1] 18.94958
```