

## CT5102: Programing for Data Analytics

### Assignment 9: Implementing an S3 Class

Implement a vector (myvec) class in R, and extend base operators (functions) in order to filter, change and explore the class. The class constructor is as follows:

```
myvec <- function(v){  
  if(!is.numeric(v))  
    stop("Error, data type must be numeric.")  
  structure(list(data=v),class="myvec")  
}
```

Extend the following base operators in R in order to code the solution:

```
[      [<-   <      <=    >      >=    !=     ==
```

Also, provide implementations of the following functions:

```
print      sum      mean
```

Test the functions with the following code:

```
> x<-myvec(1:10)  
  
> x  
s3 class = myvec  
Number of elements = 10  
1 2 3 4 5 6 7 8 9 10  
  
> x[1:2]  
[1] 1 2  
  
> x[1:2] <- 0  
  
> x[x<1]  
[1] 0 0  
  
> x[x>1]  
[1] 3 4 5 6 7 8 9 10  
  
> x[x!=0]  
[1] 3 4 5 6 7 8 9 10  
  
> x[1]<-NA  
  
> sum(x)  
[1] NA  
  
> sum(x,na.rm = T)  
[1] 52  
  
> mean(x)  
[1] NA  
  
> mean(x,na.rm=T)  
[1] 5.777778
```