R PROGRAMMING

Tutorial 10

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> #Ques-1
> dv=matrix(c(9,6,9,0,2,3,1,2),nrow = 8,ncol = 1,byrow = TRUE)
> dv2=matrix(c(3,2,7,4,0,8,9,7),nrow = 8,ncol = 1,byrow = TRUE)
> mean=mean(dv)
> print(mean)
[1] 4
> mex3=2
> print(mex3)
[1] 2
>
> obs=matrix(c(9,6,9,0,2,0,3,1,2),nrow = 3,ncol = 3,byrow = TRUE)
> mean=matrix(c(4,4,4,4,4,0,4,4,4),nrow = 3,ncol = 3,byrow = TRUE)
> tr=matrix(c(4,4,4,-3,-3,0,-2,-2,-2),nrow = 3,ncol = 3,byrow = TRUE)
> resi=matrix(c(1,-2,1,-1,1,0,1,-1,0),nrow = 3,ncol = 3,byrow = TRUE)
> ssobs=apply(obs, 1, FUN = function(x) sum(x^2))
> ssmean=apply(mean, 1, FUN = function(x) sum(x^2))
> sstr=apply(tr, 1, FUN = function(x) sum(x^2))
> ssres=apply(resi, 1, FUN = function(x) sum(x^2))
> print(sum(ssobs))
[1] 216
> print(sum(ssmean))
[1] 128
> print(sum(sstr))
[1] 78
> print(sum(ssres))
[1] 10
> sscorrected=sum(ssobs)-sum(ssmean)
> print(sscorrected)
[1] 88
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> #For DV2
> obs2=matrix(c(3,2,7,4,0,0,8,9,7),nrow = 3,ncol = 3,byrow = TRUE)
> mean2=matrix(c(5,5,5,5,5,0,5,5,5),nrow = 3,ncol = 3,byrow = TRUE)
> tr2=matrix(c(-1,-1,-1,-3,-3,0,3,3,3),nrow = 3,ncol = 3,byrow = TRUE)
> resi2=matrix(c(-1,-2,3,2,-2,0,0,1,-1),nrow = 3,ncol = 3,byrow = TRUE)
> ssobs2=apply(obs2, 1, FUN = function(x) sum(x^2))
> ssmean2=apply(mean2, 1, FUN = function(x) sum(x^2))
> sstr2=apply(tr2, 1, FUN = function(x) sum(x^2))
> ssres2=apply(resi2, 1, FUN = function(x) sum(x^2))
> print(sum(ssobs2))
[1] 272
> print(sum(ssmean2))
[1] 200
> print(sum(sstr2))
[1] 48
> print(sum(ssres2))
[1] 24
> sscorrected2=sum(ssobs2)-sum(ssmean2)
> print(sscorrected2)
[1] 72
>
> meancrossp=mean*mean2
> trcrossp=tr*tr2
> resicrossp=resi*resi2
> totalp=obs*obs2
> print(sum(trcrossp))
[1] -12
> print(sum(resicrossp))
[1] 1
> print(sum(meancrossp))
[1] 160
> print(sum(totalp))
[1] 149
> totalcrossprod=sum(totalp)-sum(meancrossp)
> print(totalcrossprod)
[1] -11
> totalcorr=matrix(c(88,-11,-11,72),nrow = 2,ncol = 2,byrow = TRUE)
> finresi=matrix(c(10,1,1,24),nrow = 2,ncol = 2,byrow = TRUE)
> q=det(finresi)/det(totalcorr)
> print(q)
[1] 0.03845535
> F=((1-sqrt(q))/sqrt(q))*2
> print(F)
[1] 8.19886
```