Submitted by:

**Mishaal Ijaz**

**Class BSCS 5C**

**129615**

https://github.com/mishaalijaz/APlab4

Source code:

library(ggplot2)

#TASK1

p <- matrix(AirPassengers, ncol = 12, byrow =TRUE, dimnames = list( as.character(1949:1960),month.abb))

Max <- max(p)

ind = which(p==Max, arr.ind = TRUE)

sprintf("The most profitable month is %s and year is %s", colnames(p)[ind[2]], rownames(p)[ind[1]])

plot(AirPassengers, ylab= "Passengers", xlab="Years", type="o", pch=20)

#TASK2

ticket\_prices <- 8000

for (i in 2:12) #accomodating ticket prices in an array

{

ticket\_prices[i]<-ticket\_prices[i-1]\*1.1

}

month\_result<-matrix(nrow=12, ncol=12, dimnames = list(as.character(1949:1960), month.abb))

monthly\_revenues<-ap\*ticket\_prices

month\_result

Max\_month <- max(month\_result)

ind1 = which(month\_result==Max\_month, arr.ind1 = TRUE)

total\_passengers<-rowSums(p)

year\_result<-ticket\_prices\*total\_passengers

max\_year<-max(year\_result)

total\_revenue<-sum(year\_result)

sprintf("The maximum revenue by is %s which is in %s %s", Max\_month, colnames(month\_result)[ind1[2]], rownames(month\_result)[ind1[1]])

sprintf("The yearly maximum revenue is %s which is in %s", max\_year, rownames(month\_result)[ind1[1]])

sprintf("The total revenue of this company in twelve years is %s", total\_revenue)

#TASK3

travel\_trend<-colSums(apm)

plot(travel\_trend, ylab= "Travelling passengers", xlab="Months", type="o", pch=20)

axis(1, at = month.abb, las=1)