PIE CHART

PROBLEM

Mr. X's monthly income is Rs 36,000. The monthly expenses of his family on various items are given below.

Item	Rent	Food	Entertainment	Education	Savings	Medical
Expenditure (in Rs)	6480	9000	3240	8280	4320	4680

Represent the above data by a pie chart and follow the below instructions

1. Represent the data in percentages as label
2. Give color 'Red' to the item with the most expenditure
3. Give a shading effect to the item with the least expenditure
4. Find the percentage difference between the most and least expenditure of Mr. X

AIM

To draw a pie chart of the given data and implement the instructions given on the pie chart.

PROCEDURE

1. Open R studio
2. Read the inputs using c()
3. Type the commands to achieve the desired output
4. Get the output

INPUT

1. Enter the input expenditure data using R command c()
2. Enter the item names using R command c()
3. Calculate the percentage of the expenditure using formula and round off the value using R function – round()
4. Using paste() function in R, include the percentage values and symbol
5. From the color palettes in R, use rainbow() function where number of colors is the length of the input data
6. Assign the red color in the rainbow palette to the maximum value(using which.max()) in the input data
7. Assign the shading effect(density()) at an angle of 30 to the minimum value(using which.min()) in the input data

8. Create the pie chart using R command pie()
9. Calculate the percentage difference using user defined formula
10. The pie chart will be displayed on the plots section and the other outputs will be displayed on the R console.

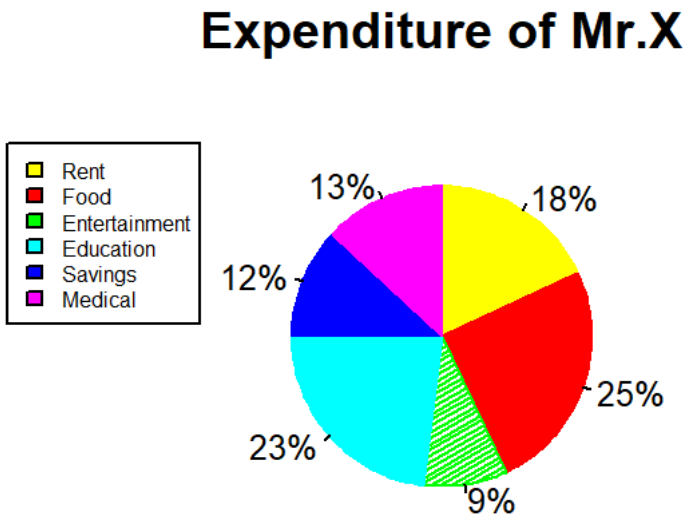
CODE IN R LANGUAGE

```
expenses = c(6480,9000,3240,8280,4320,4680)
items = c("Rent","Food","Entertainment","Education","Savings","Medical")

#Converting the data into percentage form
pct = round(expenses/sum(expenses)*100)
items = paste(pct,"%",sep="")

#Giving the 'red' color to the item with the most expenditure
col_list = rainbow(length(expenses))
red_col = match("#FF0000",col_list)
max_pos = which.max(expenses)
temp = col_list[max_pos]
col_list[max_pos]="#FF0000"
col_list[red_col]=temp

#Giving the shading effect to the item with the least expenditure
min_pos = which.min(expenses)
density1=rep(NA,length(expenses))
density1[min_pos] = 50

#Plotting the pie chart
pie(expenses,labels = items,main='Expenditure of Mr.X',clockwise = TRUE,col=col_list,cex=0.8,density = density1,angle = 30,border=col_list)
legend(locator(1),legend=c("Rent","Food","Entertainment","Education","Savings","Medical"),cex=0.5,fill=col_list)

#Finding the percentage difference
Max = pct[max_pos]
Min = pct[min_pos]
```

diff = (((Max-Min)/Max)*100)

diff

OUTPUT




```
> diff = (((Max-Min)/Max)*100)
> diff
[1] 64
```

RESULT

After analyzing the pie chart, the percentage difference between the most and least expenditure of Mr. X is 64 %