

Inventory – Sales Trend Analysis of XYZ Hyper Market



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Introduction



- Inventory analysis is the process of understanding the stock/product mix combined with the knowledge of the demand for stock/product. It is the technique to determine the optimum level of inventory for a firm.
- Sales analysis examines sales reports to see what goods and services have and have not sold well . It also provides information on the company's sales trend over the year.
- This project provides the data visualization of the stock , purchase , sales trends of the company over a year.

Purchase analysis



- Purchase **analysis** is the **analysis** of what goes on in your **purchasing** department, are they keeping to the **purchasing** strategy and are inventories being kept to the optimum levels.
- Here purchase trend of the firm throughout the year is being studied

Monthly purchase trend



The screenshot shows the RStudio environment with the following components:

- Source Editor:** Contains R code for reading a CSV file, inspecting its structure, and creating a barplot.
- Console:** Displays the execution output, including a table of data and a series of commands for plotting.

Source Editor Code:

```
1 sp<-read.csv(file.choose(),blank.lines.skip=TRUE,header=TRUE)
2 plot.new()
3
4 head(sp)
5 tail(sp)
6
7 barplot(as.numeric(sp[,2])/1000,col=c("orange"),
8         names.arg=sp$Month,
9         ylab="Purchase in 1000s",main="Monthly Purchase Trend")
10
```

Console Output:

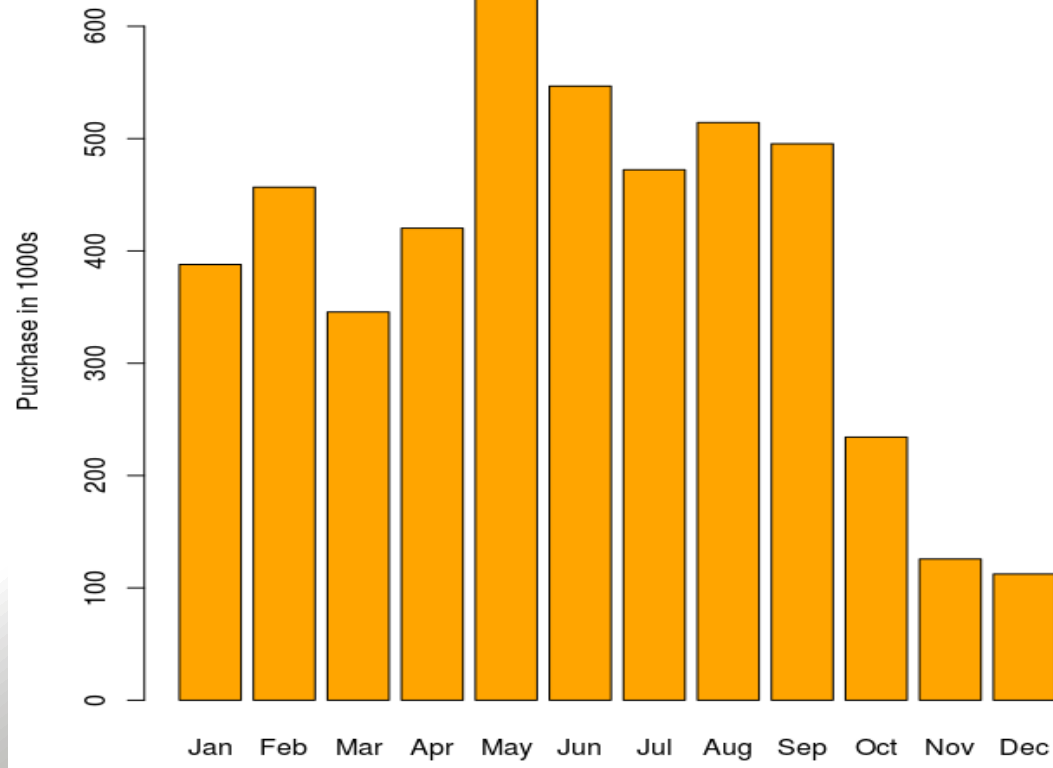
```
10:1 (Top Level) >
> plot.new()
> plot(sales$Sales,purchase$Purchases)
> sp<-read.csv(file.choose(),blank.lines.skip=TRUE,header=TRUE)
> plot.new()
> barplot(as.numeric(sp[,2])/1000,col=c("lightblue"),
+         names.arg=sp$Month,
+         ylab="Sales in 1000s",main="Monthly Purchase Trend")
> barplot(as.numeric(sp[,2])/1000,col=c("lightorange"),
+         names.arg=sp$Month,
+         ylab="Purchase in 1000s",main="Monthly Purchase Trend")
Error in rect(y1, x1, y2, x2, ...) : invalid color name 'lightorange'
> barplot(as.numeric(sp[,2])/1000,col=c("orange"),
+         names.arg=sp$Month,
+         ylab="Purchase in 1000s",main="Monthly Purchase Trend")
>
```

Table Output:

Month	Purchase (in 1000s)
Sep	495437
Oct	234211
Nov	125673
Dec	112342



Monthly Purchase Trend



Stock value analysis



- Stock value analysis analyses the value of certain item in the company stock
- Here items are grouped accordingly and their value to the total stock percentile is calculated

Stock value analysis

The image shows the RStudio interface with a script editor and a console. The script editor contains R code for reading a CSV file, plotting a new plot, and creating a pie chart. The console shows the execution of the code, including the creation of a pie chart and the display of the legend.

```
1 sp<-read.csv(file.choose(),blank.lines.skip=TRUE)
2 plot.new()
3
4 head(sp)
5 tail(sp)
6
7 x<-table(sp$VALUE)
8
9 pie(x,col=rainbow(12),radius=0.5,main="Category-wise Stock Value",
10     labels=sp$VALUE)
11 legend("topleft",as.character(sp$GROUP.NAME),fill=rainbow(12),cex=0.75)
12
13
14
```

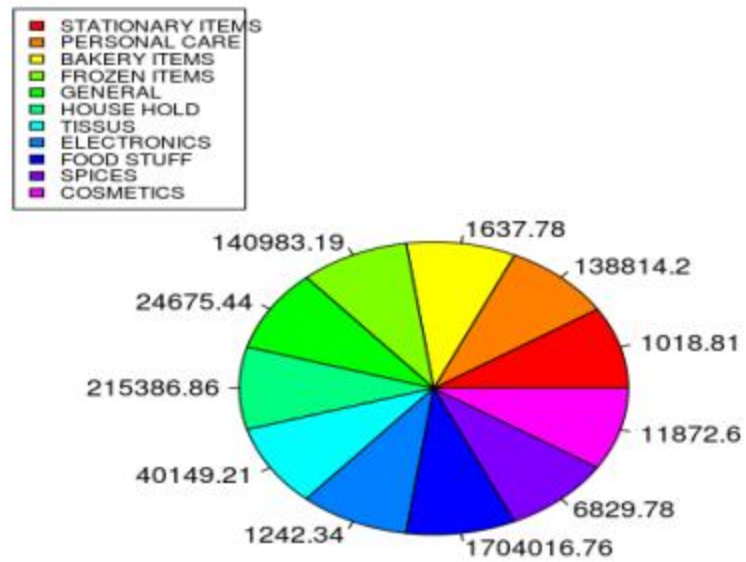
10:5 (Top Level) R Script

Console **Terminal**

```
> pie(x,col=rainbow(12),radius=20,main="Category-wise Stock Value",labels=s
p$VALUE)
> pie(x,col=rainbow(12),radius=20,main="Category-wise Stock Value",labels=s
p$VALUE)
> pie(x,col=rainbow(12),radius=0.5,main="Category-wise Stock Value",labels=
sp$VALUE)
> legend("topleft",as.character(sp$GROUP.NAME),fill=rainbow(12))
> pie(x,col=rainbow(12),radius=0.4,main="Category-wise Stock Value",labels=
sp$VALUE)
> legend("topleft",as.character(sp$GROUP.NAME),fill=rainbow(12))
> legend("topleft",as.character(sp$GROUP.NAME),fill=rainbow(12))
> pie(x,col=rainbow(12),radius=0.4,main="Category-wise Stock Value",labels=
sp$VALUE)
> legend("topleft",as.character(sp$GROUP.NAME),fill=rainbow(12))
> legend("topleft",as.character(sp$GROUP.NAME),fill=rainbow(12),cex=0.5)
> legend("topleft",as.character(sp$GROUP.NAME),fill=rainbow(12),cex=0.75)
> pie(x,col=rainbow(12),radius=0.5,main="Category-wise Stock Value",labels=
sp$VALUE)
> legend("topleft",as.character(sp$GROUP.NAME),fill=rainbow(12),cex=0.75)
>
```



Category-wise Stock Value

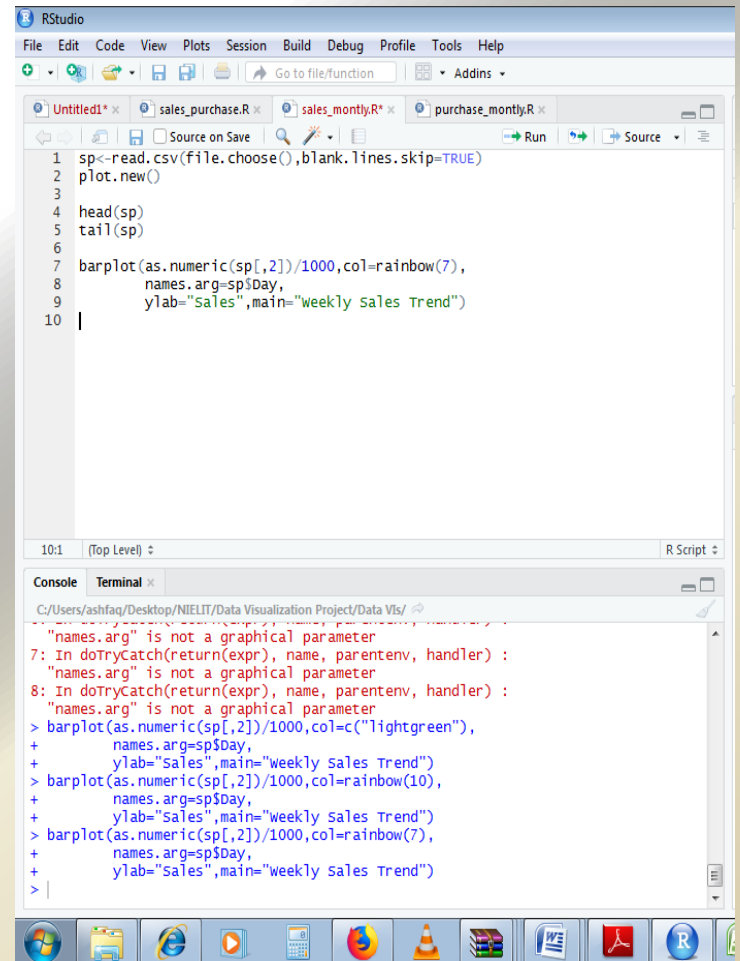


Sales analysis



- Sales analysis refers to the analysis of total sales of the company in a month , day throughout the year.
- This analysis help in sales forecasting
- It gives us an insight on customer trends
- It also helps in placing of employees throughout the year , including roster preparation .

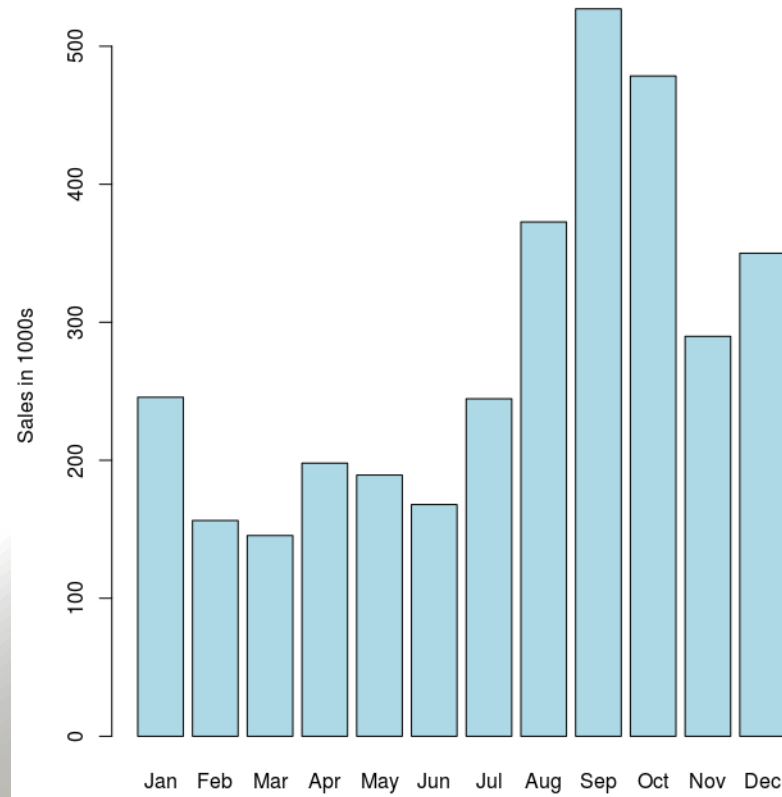
Sales analysis



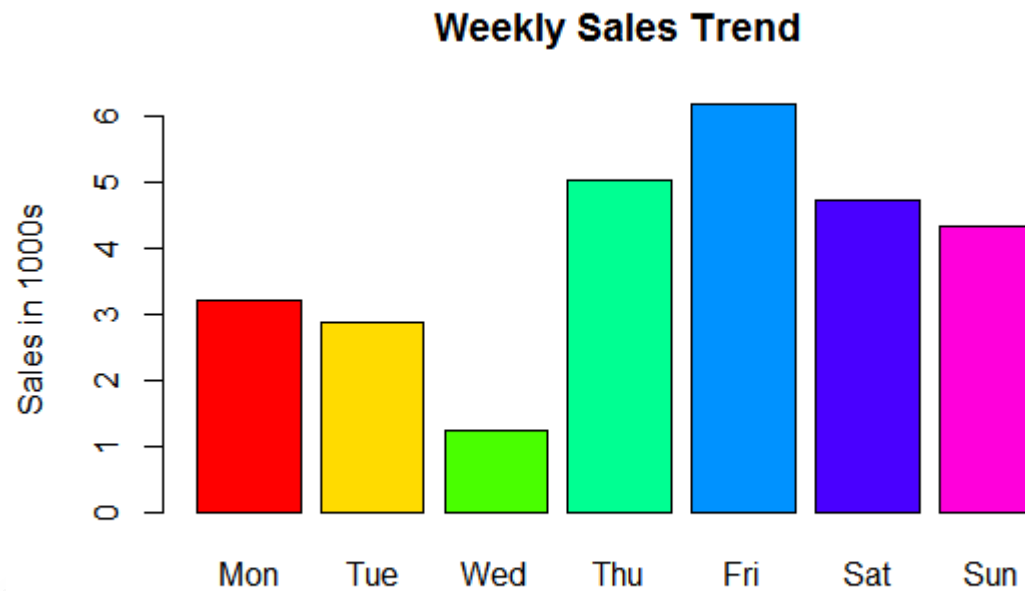
Monthly trend



Monthly Sales Trend



Weekly trend



Sales to profit analysis



- This gives us an insight on how much of the total sales accounts to the profit share of the company.
- This analysis helps in annual planning of the company .

Sales profit analysis



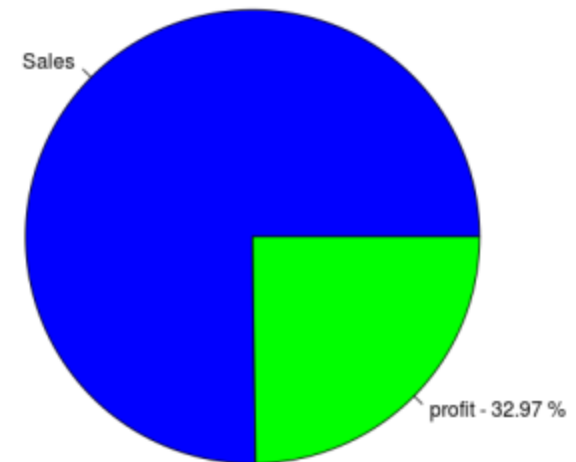
```
RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help

1 sp<-read.csv(file.choose(),blank.lines.skip=TRUE)
2 plot.new()
3
4 head(sp)
5 tail(sp)
6
7 sales<-sum(sp[,7])
8 profit<-sum(sp[,8])
9
10 profit_rate<-100 * profit/sales
11 p_label<-paste("profit -", round(profit_rate,2),"%")
12 pie(c(sales,profit),col=c("blue","green"),main="Sales v/s Profit",labels=c("Sales",p_label))
13
14
15
```

Console Terminal

```
> pie(c(sales,profit),col=c("blue","green"),main="Sales v/s Profit",labels=c("Sales",concatenate("Profit",profit_rate)))
Error in pie(c(sales, profit), col = c("blue", "green"), main = "Sales v/s Profit", : 
could not find function "concatenate"
> pie(c(sales,profit),col=c("blue","green"),main="Sales v/s Profit",labels=c("Sales","Profititi"))
> "profit (*profit_rate
Error in "profit (* + profit_rate : 
non-numeric argument to binary operator
> paste("profit (*, profit_rate,"%")
[1] "profit ( 32.9728398833856 )"
> paste("profit (*, round(profit_rate,2),"%")
[1] "profit ( 32.97 )"
> paste("profit-", round(profit_rate,2),"%")
[1] "profit- 32.97 %"
> paste("profit -", round(profit_rate,2),"%")
[1] "profit - 32.97 %"
> p_label<-paste("profit -", round(profit_rate,2),"%")
> pie(c(sales,profit),col=c("blue","green"),main="Sales v/s Profit",labels=c("Sales",p_label))
> define[]
```

Sales v/s Profit



Sales – Purchase trends



- Sales to purchase trends over the year gives us an insight over the stock of the company .
- This helps in keeping a balance between sales and purchase.

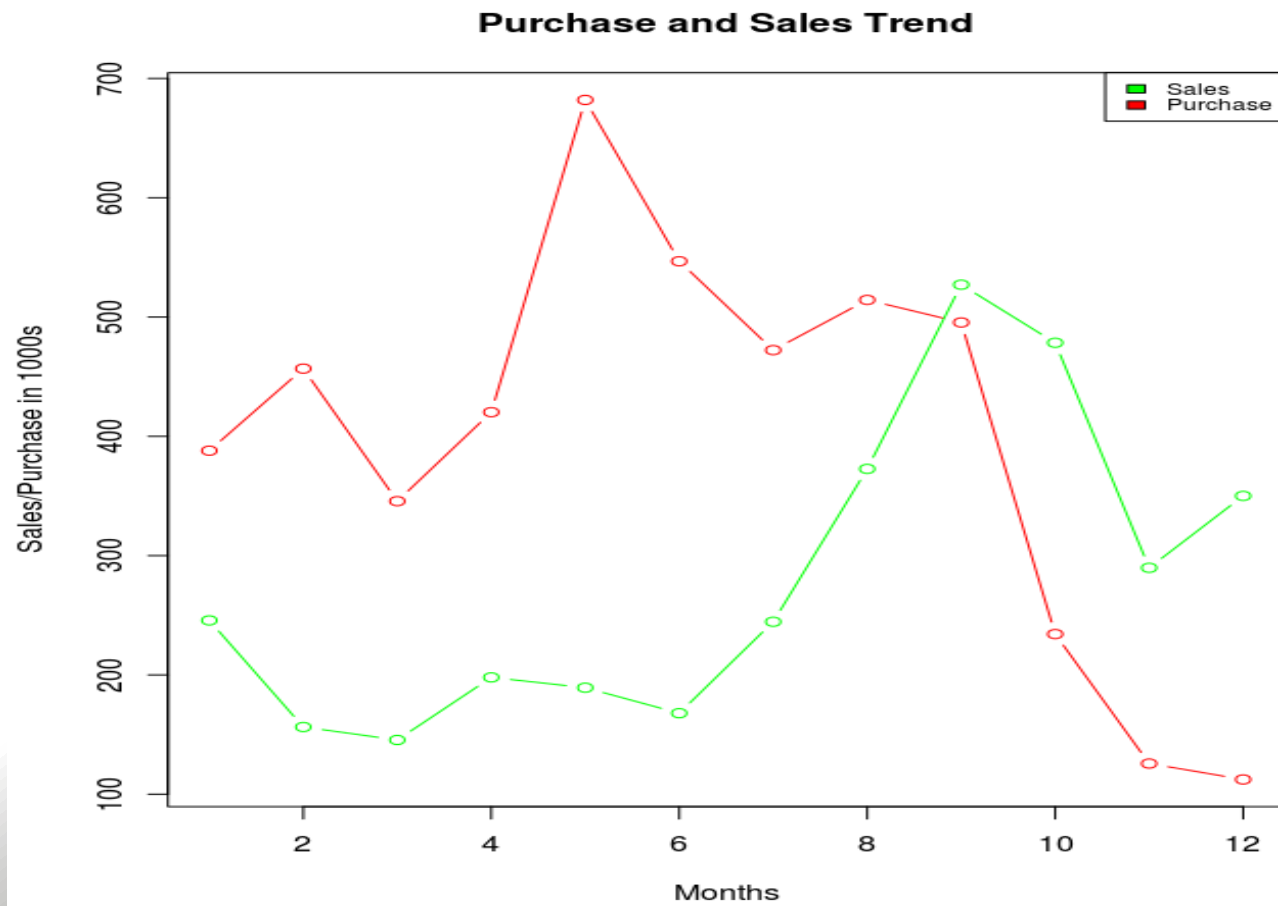
Sales-Purchase trend



The screenshot displays the RStudio interface with the 'sales_purchase.R' script open. The code defines a plot of Sales and Purchase trends over time. The plot area is currently blank, showing only the axes and a legend. The console shows the execution of the code, with the final line being `dbinom(x, size, prob, log = FALSE)`.

```
1 data<-read.csv(file.choose(),blank.lines.skip=TRUE)
2 plot.new()
3
4 plot(data[,2]/1000,col=c("red"),type='b',xlab="Months",
5       ylab="Sales/Purchase in 1000s",main="Purchase and Sales Trend")
6 lines(data[,3]/1000,col="green",type='b')
7
8 legend("topright",c("Sales","Purchase"),fill=c("green","red"),
9        bex=0.75)
10
11
```

```
> plot(data[,2]/1000,col=c("red"),type='b')
> lines(data[,3]/1000,col="green",type='b')
> plot(data[,2]/1000,col=c("red"),type='b',xlab="Months",ylab="Sales/Pur
  chase in 1000s")
> plot(data[,2]/1000,col=c("red"),type='b',xlab="Months",ylab="Sales/Pur
  chase in 1000s",main="Purchase and Sales Trend")
> plot(data[,2]/1000,col=c("red"),type='b',xlab="Months",ylab="Sales/Pur
  chase in 1000s",main="Purchase and Sales Trend")
> lines(data[,3]/1000,col="green",type='b')
> legend("topleft",c("Sales","Purchase"),fill=c("green","red"),cex=0.75)
> legend("topright",c("Sales","Purchase"),fill=c("green","red"),cex=0.75)
>
> plot.new()
> plot(data[,2]/1000,col=c("red"),type='b',xlab="Months",ylab="Sales/Pur
  chase in 1000s",main="Purchase and Sales Trend")
> lines(data[,3]/1000,col="green",type='b')
>
> legend("topright",c("Sales","Purchase"),fill=c("green","red"),cex=0.75)
>
> dbinom(x, size, prob, log = FALSE)
```

Conclusion



- The necessary plots needed for sales , purchase forecasting has been plotted analyzed.
- It has been found that purchase trend has a dip during the end of year and a hike during the middle months of the year.
- From the sales trend analysis it was found that during months after summer sales has taken a hike.



The end