

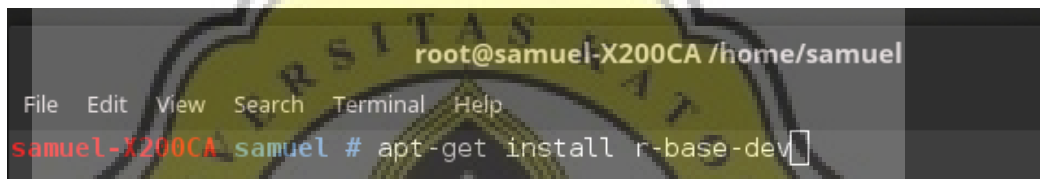
## CHAPTER 4

### ANALYSIS AND DESIGN

#### 4.1 Analysis

To start doing R programming, first install R and Rstudio. Due to using Linux, it will install on Linux OS.

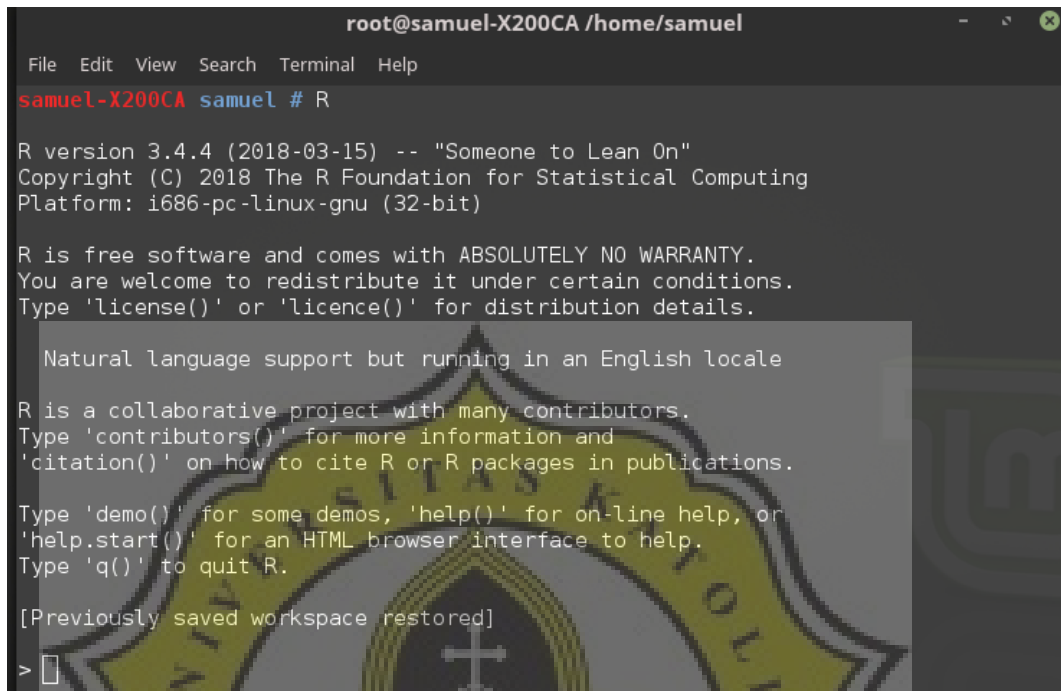
Installing R programming can do the linux comment terminal in the following way:



```
root@samuel-X200CA /home/samuel
File Edit View Search Terminal Help
samuel-X200CA samuel # apt-get install r-base-dev
```

Illustration 4.1: Image of installing R source code

Install program R in the way above, then press enter to install. After the process is running there will be a choice, select and write "Y" to confirm the next process.



```

root@samuel-X200CA /home/samuel
File Edit View Search Terminal Help
samuel-X200CA samuel # R

R version 3.4.4 (2018-03-15) -- "Someone to Lean On"
Copyright (C) 2018 The R Foundation for Statistical Computing
Platform: i686-pc-linux-gnu (32-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[Previously saved workspace restored]
>

```

Illustration 4.2: Picture that R has already been installed

Display of console R programming that has been installed. The picture above shows that R programming is very simple. Maybe with the console display it's very difficult to run the R process, so you should install Rstudio.

The next step is to install Rstudio programming, which will be used later. How to install Rstudio as follows:

Download Rstudio at <https://www.rstudio.com/products/rstudio/download/> download and select Rstudio which is linux OS. After installing Rstudio will appear after the following:

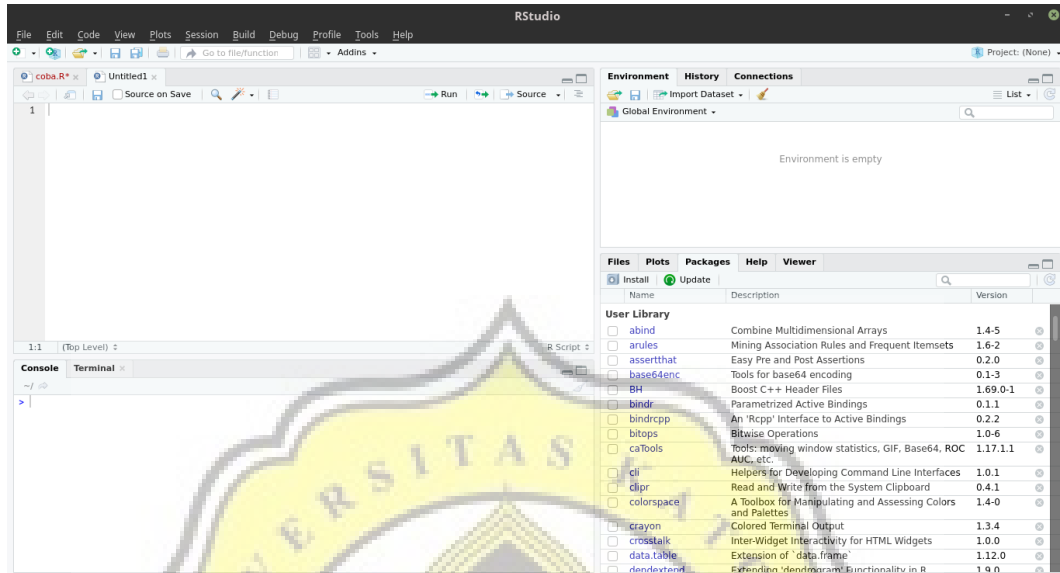


Illustration 4.3: Rstudio Display

Display from Rstudio that has been installed in the form of application software that includes a menu bar, text editor or code script, console console, environment that helps see data history and also display help.

```

root@samuel-X200CA /home/samuel
File Edit View Search Terminal Help
samuel-X200CA samuel # apt-get install libc6-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
libc6-dev is already the newest version (2.23-0ubuntu10).
libc6-dev set to manually installed.
The following package was automatically installed and is no longer required:
  openjdk-9-jdk-headless
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 69 not upgraded.
W: Target Packages (Packages) is configured multiple times in /etc/apt/sources.l
ist:2 and /etc/apt/sources.list:3
W: Target Translations (en_US) is configured multiple times in /etc/apt/sources.
list:2 and /etc/apt/sources.list:3
W: Target Translations (en) is configured multiple times in /etc/apt/sources.lis
t:2 and /etc/apt/sources.list:3
samuel-X200CA samuel #

```

Illustration 4.4: Install the package

The next step is to install the basic package from Rstudio which will assist in data processing.

```
root@samuel-X200CA /home/samuel
File Edit View Search Terminal Help
samuel-X200CA samuel # apt-get install libc6-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
libc6-dev is already the newest version (2.23-0ubuntu10).
libc6-dev set to manually installed.
The following package was automatically installed and is no longer required:
  openjdk-9-jdk-headless
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 69 not upgraded.
W: Target Packages (Packages) is configured multiple times in /etc/apt/sources.l
ist:2 and /etc/apt/sources.list:3
W: Target Translations (en US) is configured multiple times in /etc/apt/sources.
list:2 and /etc/apt/sources.list:3
W: Target Translations (en) is configured multiple times in /etc/apt/sources.lis
t:2 and /etc/apt/sources.list:3
samuel-X200CA samuel # echo "deb http://cran.fhrc.org/bin/linux/ubuntu trusty/"
| sudo tee -a /etc/apt/sources.list > /dev/null
samuel-X200CA samuel # apt-get update
```

Illustration 4.5: Install the package and update version

Update the version of the rstudio package that has been installed.

## 4.2 Desain

The purpose of processing has a basic rule to achieve the final result in the form of a graph of sales revenue. With the explanation of the process as follows:

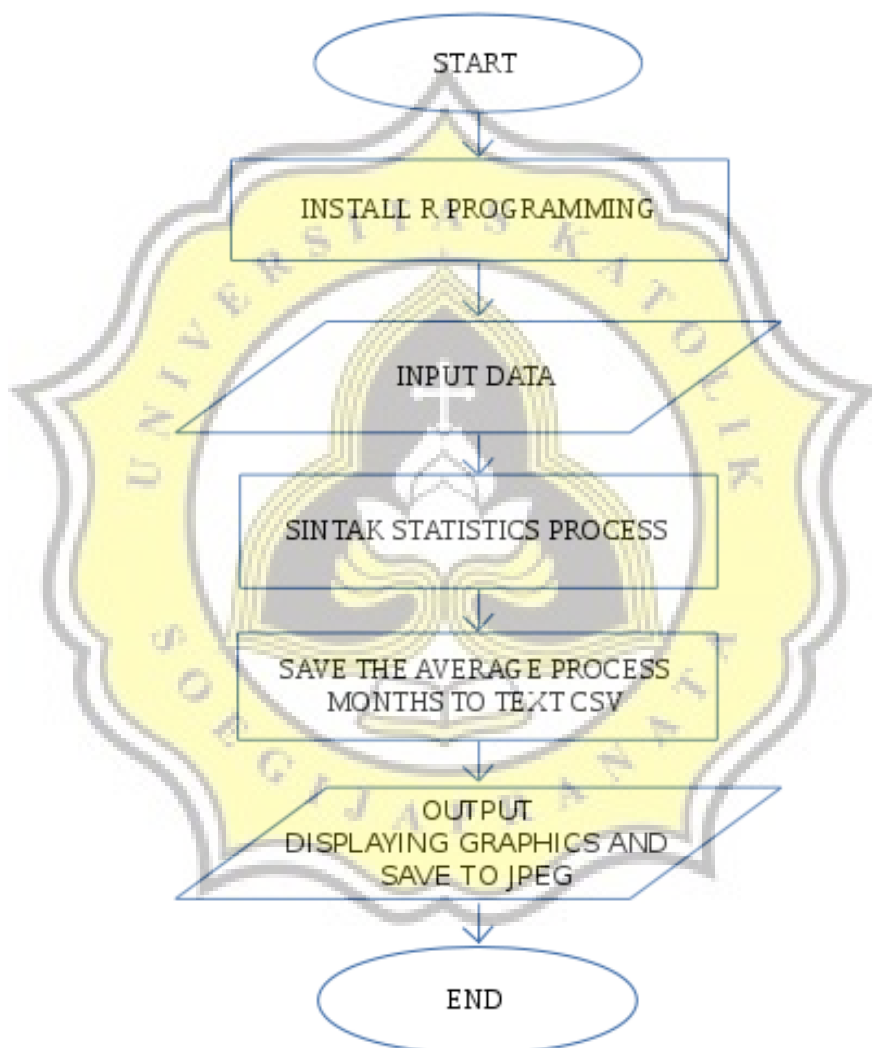


Illustration 4.6: Display flowchart