

**FACULTY OF ENGINEERING AND TECHNOLOGY**

**COURSE UNIT: COMPUTER PROGRAMMING**

**REPORT ABOUT THE MATLAB ASSIGNMENT**

**SUBMITTED BY: GROUP 2**

**GITHUB LINK:**

**Lecturer: ENG. BENEDICTO MASERUKA**

**Date of submission: ........../............./...................**

**DECLARATION**

We hereby certify and confirm that the information in this report is out of our own efforts,

research and it has never been submitted in any other institution for any academic purposes.

**NAME**   **Signature**

CHELIMO SANDRA ................................................................

ECONI RONALD .................................................................

MUHANJI MOURIS MATHEW ...................................................................

NAKAZIBWE ETHEL ..................................................................

OBUR CHARLES ..................................................................

ODONGO JOSEPH ARYONG ..................................................................

OGUTU DANIEL WAFULA ...................................................................

ONANYANG FRANCIS ......................................................................

OWOR HAMIDU ......................................................................

POFFIA ADONGO .......................................................................

**APPROVAL**

This is to confirm that this report has been written and presented by Group 2, giving the details of the MATLAB assignment and what they learnt.

**LECTURER;**

**NAME:** .............................................................................................................

**SIGNATURE:** ......................................................................................................

**DATE:** ....................................................................................................

**ABSTRACT**

We started our assignment in the Busitema University library out of which were we exposed to various codes in the different sections through Group 2 members, we generated the codes necessary from the work that we were taught in the lecture and also researched

on more information that could help us complete the assignment.

**ACKNOWLEDGEMENT**

We would like to thank the Almighty God for giving us the strength to carry on with our assignment as Group 2. We would love to extend our gratitude to all the people with whose help we managed to make it. The willingness of each one of us to put in the time and provide constructive feedback has been immensely valuable in this assignment. Lastly, we would like to express our gratitude to all the sources and references that were used.

**DEDICATION**

We dedicate this report to all the students of Group 2, who have been there for us in the process of formulating and producing this report. We also dedicate this report to our lecturer Mr. Benedicto Maseruka whose guidance and expertise have been invaluable, his mentorship

and insightful feedback have shaped our understanding.

**MEMBERS IN GROUP 2**

|  |  |  |  |
| --- | --- | --- | --- |
| **STUDENT NAME** | **COURSE** | **REGISTRATION NUMBER** | **GITHUB LINK** |
| Chelimo Sandra | WAR | BU/UP/2024/5402 | https://github.com/chelimosandra6-png/Chelimo-Sandra-.git |
| Nakazibwe Ethel | AMI | BU/UP/2024/0835 | https://github.com/ethelnakazibwe9/Nakazibwe-Ethel-.git |
| Poffia Adongo | AMI | BU/UP/2024/0823 | https://github.com/padongo240823-ops/Poffia2004#:~:text=https%3A//github.com/padongo240823%2Dops/Poffia%2D2004.git |
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| Muhangi Mouris Mathew | MEB | BU/UP/2024/5345 | https://github.com/mourismuhangi-prog/Muhangi-Mouris-Mathew-#:~:text=https%3A//github.-,com,-  /mourismuhangi%2Dprog/Muhangi |
| Odongo Joseph Aryong | AMI | BU/UP/2024/0840 | https://github.com/odongjoseph12/joseph.git |
| Obur Charles |  | BU/UP/2024/3743 | https://github.com/charlesobur86/Obur-Charles-.git |
| Onanyang Francis |  |  |  |
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**CHAPTER ONE**

**NUMDER ONE**

We retieved a unique file (Nigerian\_Road\_Traffic\_Crashes \_2020\_2024.csv) from a site called Kaggle.com on the web. We were able to represent data of each year through the following ways;

* Each year was represented on different tables.
* The tables were then converted to structural arrays.
* The structural arrays were then converted to tables.
* The tables were saved on a single excel workbook with each year’s table on different worksheets having appropriate sheet names.
* Using the data from the different tables, we were able to obtain different graphs to represent the information and we saved the graphs as images as required in the assignment.

The code that we used is as follows;

%%Reading table into matlab

T=readtable("Nigerian\_Road\_Traffic\_Crashes\_2020\_2024.csv",Range="A1:K519",ReadRowNames=true);

%Tables for each year

T2020=T(1:37,:);

T2021=T(38:185,:);

T2022=T(186:333,:);

T2023=T(334:481,:);

T2024=T(482:518,:);

%Converting tables to structural arrays

A=table2struct(T2020,"ToScalar",false);

B=table2struct(T2021,"ToScalar",false);

C=table2struct(T2022,"ToScalar",false);

D=table2struct(T2023,"ToScalar",false);

E=table2struct(T2024,"ToScalar",false);

%Converting structural arrays to tables

AT=struct2table(A);

BT=struct2table(B);

CT=struct2table(C);

DT=struct2table(D);

ET=struct2table(E);

%Writing tables in excel

filename='Mywork.xlsx';

writetable(AT, filename,'Sheet','T2020');

writetable(BT,filename,'Sheet','T2021');

writetable(CT,filename,'Sheet','T2022');

writetable(DT,filename,'Sheet','T2023');

writetable(ET,filename,'Sheet','T2024');

%%Data visualization

%Data visualization for 2020

state = AT.State;

crashes = AT.Total\_Crashes;

invol = AT.Total\_Vehicles\_Involved

injured=AT.Num\_Injured

killed=AT.Num\_Killed

bar(crashes);

ylabel('Total Crashes');

xticklabels(state);

xlabel('States');

title('Total Crashes in 2020');

grid on

plot(injured);

xticklabels(state);

ylabel('num injured');

xlabel('state');

title('Number of injured in 2020');

pie3(killed);

title('Pie chart showing the number killed in 2020');

scatter(crashes,invol);

xlabel('State');

ylabel('Total vehicle invloved');

title('Total vehicle involved in crashes');

other=AT.Other\_Factors;

polarhistogram(other);

title('Other Factors');

pareto(injured);

title('A pareto chart showing the injured in 2020');

%Data visualization for 2021

state2 = BT.State;

crashes2 = BT.Total\_Crashes;

invol2 = BT.Total\_Vehicles\_Involved

injured2=BT.Num\_Injured

killed2=BT.Num\_Killed

barh(crashes2);

ylabel('Total Crashes in 2021');

xticklabels(state2);

xlabel('States in Nigeria');

title('Total Crashes in 2021');

grid on

plot(injured2);

xticklabels(state2);

ylabel('Number of injured');

xlabel('States in Nigeria');

title('Number of injured in 2021');

pie(killed2);

title('Pie chart showing the number killed in 2021');

scatter(crashes2,invol2);

xlabel('Number of crashes');

ylabel('Total vehicle invloved');

title('Total vehicle involved in the crashes');

other2=BT.Other\_Factors;

polarhistogram(other2);

title('Other Factors contributing to the Crashes');

pareto(injured2);

title('A pareto chart showing the injured in 2021');

%Data visualization for 2022

state3 = CT.State;

crashes3 = CT.Total\_Crashes;

invol3 = CT.Total\_Vehicles\_Involved

injured3=CT.Num\_Injured

killed3=CT.Num\_Killed

bar(crashes3,'stacked','yellow','EdgeColor','flat');

ylabel('Total Crashes');

xticklabels(state3);

xlabel('States');

title('Total Crashes in 2022');

plot(injured3,'b\*');

xticklabels(state3);

ylabel('num injured');

xlabel('states');

title('Number of injured in 2022');

grid on

pie3(killed3,crashes3);

title('Pie chart showing the number killed in 2022');

scatter(crashes3,invol3,'r\*');

xlabel('State');

ylabel('Total vehicles invloved');

title('Total vehicles involved in crashes');

grid on

other3=CT.Other\_Factors;

waterfall(injured3,other3);

xticklabels(state3);

xlabel('States in Nigeria');

ylabel('Number of injured');

zlabel('Other Factors');

title('Number of injured against other factors in 2022');

%Data visualization for 2023

state4 = DT.State;

crashes4 = DT.Total\_Crashes;

invol4 = DT.Total\_Vehicles\_Involved

injured4=DT.Num\_Injured

killed4=DT.Num\_Killed

barh(crashes4);

ylabel('Total Crashes');

xticklabels(state4);

xlabel('States in Nigeria');

title('Total Crashes in 2023');

grid on

plot(killed4,'k-o');

xticklabels(state4);

ylabel('num killed');

xlabel('states in Nigeria');

title('Number of injured in 2023');

grid on

scatter(crashes4,invol4,'k\*');

xlabel('Crashes in Nigeria');

ylabel('Total vehicles invloved');

title('Total vehicles involved in crashes');

hold on;

plot(crashes4,invol4,'-b','LineWidth',1.5);

hold off;

other4=DT.Other\_Factors;

polarhistogram(other4);

title('Other Factors Contributing to the crashes');

pareto(injured4);

title('A pareto chart showing the injured in 2023');

%Data visualization for 2024

state5 = ET.State;

crashes5 = ET.Total\_Crashes;

invol5 = ET.Total\_Vehicles\_Involved;

injured5=ET.Num\_Injured;

killed5=ET.Num\_Killed;

other5=ET.Other\_Factors;

bar(crashes5,'cyan');

ylabel('Total Crashes');

xticklabels(state5);

xlabel('States');

title('Total Crashes in 2024');

grid on

plot(injured5,'-k');

xticklabels(state5);

ylabel('num injured');

xlabel('states');

title('Number of injured in 2024');

pie3(killed5);

title('Pie chart showing the number killed in 2024');

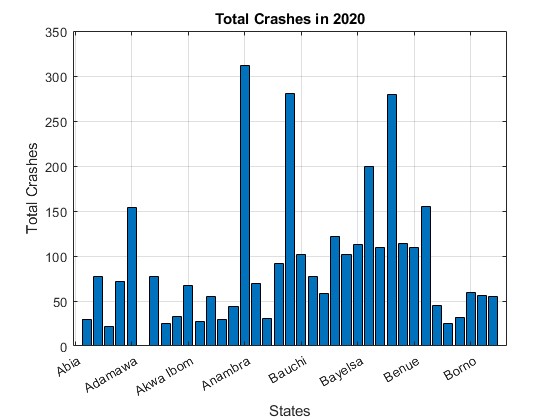
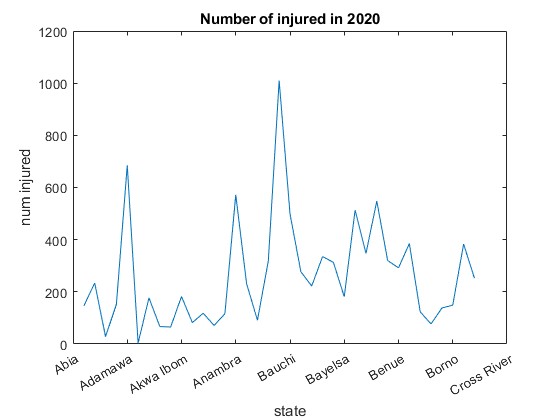
scatter(invol5,other5,'mx');

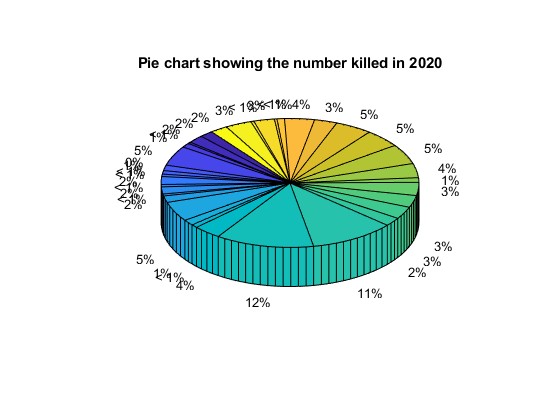
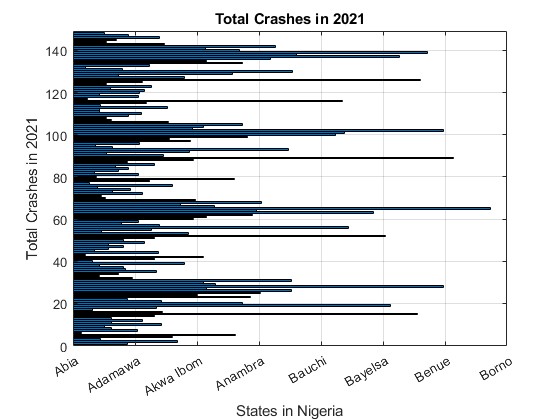
xlabel('Vehicles involved');

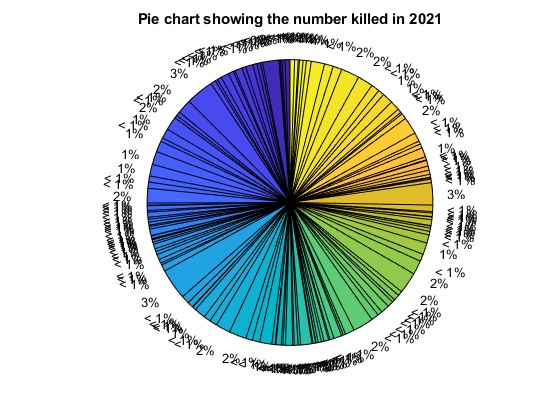
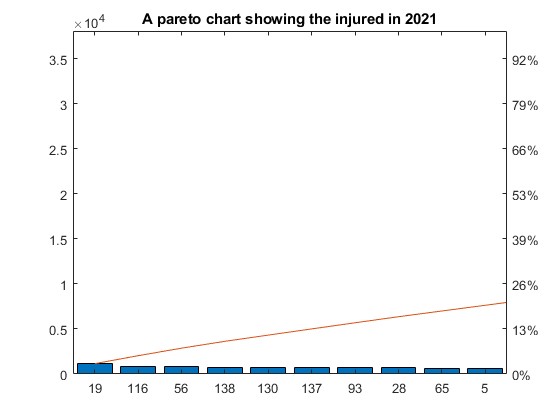
ylabel('Other factors');

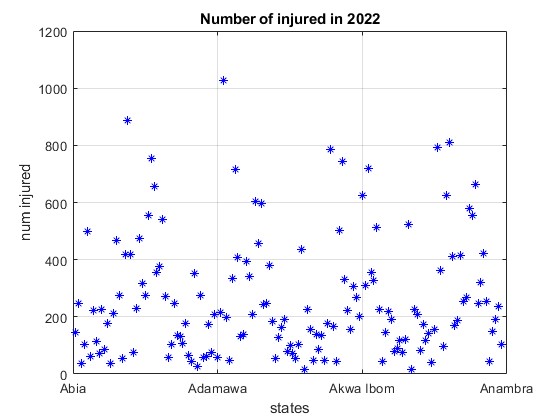
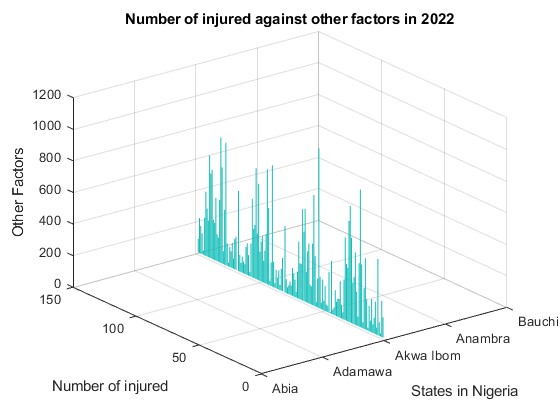
title('Total vehicles involved in crashes');

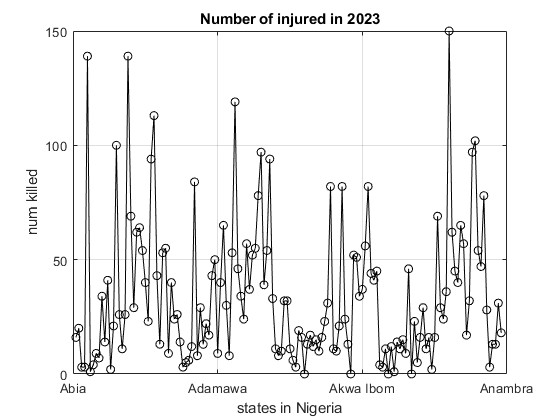
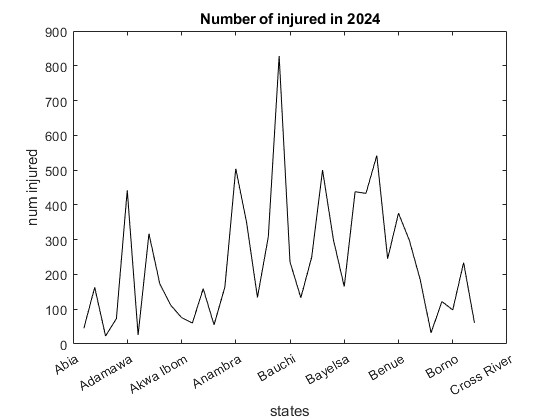
Some of the graphs include:

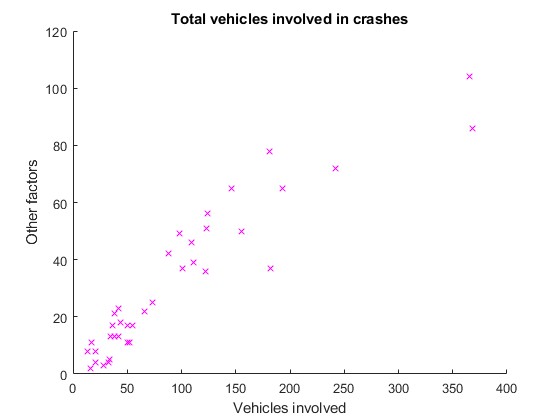
 

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