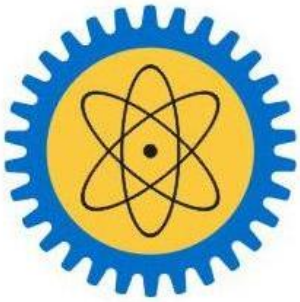

FACULTY OF ENGINNEERING AND TECHNOLOGY

REPORT ABOUT COMPUTER PROGRAMMING ASSIGNMENT ON MODULE 3

GROUP NAME: GROUP 9

COURSE UNIT: COMPUTER PROGRAMMING

GROUP LINK. https://github.com/Groupematlab/group-E.git

This assignment report is submitted to the lecturer of computer programming Mr. BENEDICTO MASERUKA by group 9 for the award of coursework marks.

Submitted on…/……/…….

APPROVAL

This is to confirm that this report has been written and presented by GROUP E giving the details for the assignment.

LECTURER'S NAME:……
…….

SIGNITURE:……
……

DATE:……
…….

DECLARATION

We, members of group 9, sincerely declare this report to all members who may need to use its content for approval or study. This is out of our own knowledge and research and is the content of our own writing and research.

Date of declaration……

Group representative signature……

ACKNOWLEDGEMENT

We first of all thank GOD for the gift of understanding and unity among our group members from the start of the assignment to the point of accomplishment.

In addition, great thanks go to the lecturer for the teaching method he used to make us understand more techniques in MATLAB through giving us this assignment.

Lastly, we also appreciate each member for the support in researching and documenting the results of this assignment.

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ABSTRACT

This report is about the assignment which was given to all groups in computer programming including our group E on September 4, 2025. We started with further research on addition to the knowledge which was given to us by our lecturer. We managed to succeed with the assignment by generating right codes that are matching to the assignment given.

The table below shows the members who contributed towards the accomplishment of this assignment.

GROUP MEMBER'S DETAILS

NAME	REG. NUMBER	COURSE	SIGNATURE
1. NAMARA ROMUS	BU/UG/2024/2596	WAR	
2. KAWAASE JOHN KIZZA	BU/UP/2024/4661	AMI	
3. BIIRA EDITOR	BU/UG/2024/5058	WAR	
4. OBUA LOUIS	BU/UP/2024/0839	AMI	
5. KANYANGE SHEEBAH M	BU/UG/2024/2630	MEB	
6. ATIM SARAH	BU/UP/2024/5473	WAR	
7. NUWAMANYA MUGISHA EVANS	BU/UP/2024/0877	APE	
8. NAMWANJE SAMALE	BU/UP/2024/3821	PTI	
9. MUHAIRWE VICTOR	BU/UP/2024/5254	AMI	
10.ABONGO CHRISTOPHER	BU/UP/2024/1002	WAR	

1. CHAPTER ONE;

1.0 NUMBER ONE

Qn. There is a site called kaggle.com on the website. Each group should be able to retrieve a unique dataset in excel format. The group will be able to copy the variables of each year and put them in the following;

Tables for each year of data

Convert the tables in (i). above into structural arrays

Output each of the variables in (ii) above into a single workbook with each year on a separate sheet having clear column headings and sheet names.

1.1. INTRODUCTION.

This question aims at training learners how to retrieve data from the website called kaggle.com and other websites that contains huge amount of data in database form. Then after retrieving, how data can be treated and then re-uploaded for reference purposes. It also aimed at teaching us how to import data into MATLAB, do some required operation on data and how to output information from MATLAB. It required us to use the skills we acquired from module one to three of the lecture syllabus.

We used kaggle.com because it contains datasets published by users who can build models and work with other data scientist and machine learning engineers. It is where one can participate in competition to solve data science challenges.

1.2. Background

Kaggle.com is a platform for data science competitions and hosting datasets. It was founded in 2010 by Ben Hamner and Anthony Goldbloom.

Initially, kaggle focused on hosting data science competitions, where participants could compete to solve complex data science problems.in 2011, kaggle got investors who raised its funding. Investors included Index ventures and Khosla ventures. This funding helped kaggle to expand its platform and user base.

In 2017, google acquired kaggle for an undisclosed amount. After the acquisition, it continued to operate independently with its own leadership and team.

Today, kaggle is one of the largest and most popular data science platforms in the world, with over 5 million registered users. Kaggle hosts a wide range of datasets, competitions, and learning resources, making it a go-to destination for data scientists and machine learning enthusiasts.

1.3. Key features of kaggle.

- *Competitions.* Kaggle hosts a wide range of data science competitions from predictive modeling to computer vision.
- *Datasets.* Kaggle hosts a vast collection of public datasets, which can be used for research, prototyping and learning.
- *Kaggle Notebooks.* A free browser-based online integrated development environment for data science and machine learning.
- *Kaggle learn.* A platform for learning data science and machine learning through interactive tutorials and exercises.

1.5. Methodology of data retrieval.

We downloaded the document called world_population from kaggle.com and it was in CSV form. We changed it into excel format and saved in a new directory on the PC.

1.5.1. Data import into MATLAB

We opened MATLAB and read the table in excel format using the *readtable* command as follows;

```
groupe = readtable("C:\Users\Sober\Desktop\matlab
assignment\world_population.xlsx",Range="A1:L12",ReadVariableName=true);
```

The table is displayed in matlab ready for manipulation.

1.5.2. Data manipulation using MATLAB

How we extracted data from the table for each year.

To extract the section of the table with all rows and columns from 1 to 6 for year 2022, we used the code;

```
%T = 2022
T = groupe(:,1:6);
```

To extract the section of the table with all rows and columns from 1 to 5 and 7 for year 2020, we used the code;

```
%E = 2020
E = groupe(:,[1,2,3,4,5,7]);
```

To extract the section of the table with all rows and columns from 1 to 5 and 8 for year 2015, we used the code;

```
%R = 2015
R = groupe(:,[1,2,3,4,5,8]);
```

To extract the section of the table with all rows and columns from 1 to 5 and 9 for year 2010, we used the code;

```
%N = 2010
N = groupe(:,[1,2,3,4,5,9]);
```

To extract the section of the table with all rows and columns from 1 to 5 and 10 for year 2000, we used the code;

```
%V = 2000
V = groupe(:,[1,2,3,4,5,10]);
```

To extract the section of the table with all rows and columns from 1 to 5 and 11 for year 1990, we used the code;

```
%A = 1990
A = groupe(:,[1,2,3,4,5,11]);
```

To extract the section of the table with all rows and columns from 1 to 5 and 12 for year 1980, we used the code;

```
%K = 1980
K = groupe(:,[1,2,3,4,5,12]);
```

1.5.4. TO CONVERT THE TABLES INTO STRUCTURAL ARRAYS

Each code below displays the structural array of the corresponding table

```
%TS = structurearray T
TS = table2struct(T);
%ES = structurearray E
ES = table2struct(E);
%RS = structurearray R
RS = table2struct(R);
%NS = structurearray N
NS = table2struct(N);
%VS = structurearray V
VS = table2struct(V);
%AS = structurearray A
AS = table2struct(A);
```

```
%KS = structurearray K
KS = table2struct(K);
%ST = structure to table of TS
ST = struct2table(TS);
```

1.5.5. Outputting the tables into excel workbook with each in its worksheet.

We used the code below to write the corresponding table in excel form.

```
%sheetone = 2022
writetable(ST,'C:\Users\Sober\Desktop\matlab assignment\sheetone.xlsx');
%SE = structure of table ES
SE = struct2table(ES);
%sheettwo = 2020
writetable(SE,'C:\Users\Sober\Desktop\matlab assignment\sheettwo.xlsx');
%SR = structure of table RS
SR = struct2table(RS);
%sheetthree = 2015
writetable(SR,'C:\Users\Sober\Desktop\matlab assignment\sheetthree.xlsx');
%SN = structure to table of NS
SN = struct2table(NS);
%sheetfour = 2010
writetable(SN,'C:\Users\Sober\Desktop\matlab assignment\sheetfour.xlsx');
%SV = structure of table VS
SV = struct2table(VS);
%sheetfive = 2000
writetable(SV,'C:\Users\Sober\Desktop\matlab assignment\sheetfive.xlsx');
%SA = structure of table AS
SA = struct2table(AS);
%sheetsix = 1990
writetable(SA,'C:\Users\Sober\Desktop\matlab assignment\sheetsix.xlsx');
%SK = structure of table KS
```

```
SK = struct2table(KS);
%sheetseven = 1980
writetable(SK,'C:\Users\Sober\Desktop\matlab assignment\sheetseven.xlsx');
```

2.0 CHAPTER TWO;

2.1 QUESTION TWO

The code that displays each member's details in structure array

```
%%Defining struct
Members = struct
('Name',{},'Age',{},'Religion',{},'Course',{},'Tribe',{},'Background',{},'Interes
ts',{},'HomeDistrict',{},'Village',{},'FacialRepresentation',{});
% Member 1
Members(1).Name = 'NAMARA ROMUS';
Members(1).Age = '23';
Members(1).Religion = 'SDA';
Members(1).Course = 'WAR';
Members(1).Tribe = 'MUNYORO';
Members(1).Background = 'HUMBLE';
Members(1).Interests = 'READING';
Members(1).HomeDistrict = 'KAGADI';
Members(1).Village = 'BWARANDA A';
Members(1).FacialRepresentation = imread ('H:\IMG-20240705-WA0098.jpg');
% Member 2
Members(2).Name = 'KAWAASE KIZZA JOHN';
Members(2).Age = '25';
Members(2).Religion = 'CATHOLIC';
Members(2).Course = 'AMI';
Members(2).Tribe = 'MUGANDA';
Members(2).Background = 'HUMBLE';
Members(2).Interests = 'VOLLEYBALL';
Members(2).HomeDistrict = 'MASAKA';
Members(2).Village = 'NDEJJE';
Members(2).FacialRepresentation = imread ('ngc6543a.jpg');
```

```
% Member 3
Members(3).Name = 'KANYANGE SHEEBAH M';
Members(3).Age = '22';
Members(3).Religion = 'ISLAM';
Members(3).Course = 'MEB';
Members(3).Tribe = 'MUGANDA';
Members(3).Background = 'HUMBLE';
Members(3).Interests = 'LISTENING TO MUSIC';
Members(3).HomeDistrict = 'WAKISO';
Members(3).Village = 'WAKISO';
Members(3).FacialRepresentation = imread ('H:\IMG-20250330-WA0315.jpg');
% Member 4
Members(4).Name = 'BIIRA EDITOR';
Members(4).Age = '25';
Members(4).Religion = 'ANGLICAN';
Members(4).Course = 'WAR';
Members(4).Tribe = 'MUKONZO';
Members(4).Background = 'HUMBLE';
Members(4).Interests = 'DANCING';
Members(4).HomeDistrict = 'KASESE';
Members(4).Village = 'KAMASASA';
Members(4).FacialRepresentation = imread ('H:\IMG-20250908-WA0022.jpg');
% Member 4
Members(5).Name = 'ATIM SARAH';
Members(5).Age = '23';
Members(5).Religion = 'ANGLICAN';
Members(5).Course = 'WAR';
Members(5).Tribe = 'ITESOT';
Members(5).Background = 'MORALLY UPRIGHT';
Members(5).Interests = 'INFLUENTIAL';
Members(5).HomeDistrict = 'SOROTI';
Members(5).Village = 'AKISIM';
Members(5).FacialRepresentation = imread ('H:\IMG-20250909-WA0034_043657.jpg');
```

```
% Member 6
Members(6).Name = 'MUHAIRWE VICTOR';
Members(6).Age = '22';
Members(6).Religion = 'CATHOLIC';
Members(6).Course = 'AMI';
Members(6).Tribe = 'MUTOORO';
Members(6).Background = 'HUMBLE';
Members(6).Interests = 'DESIGNING';
Members(6).HomeDistrict = 'KABAROLE';
Members(6).Village = 'KIJURA';
Members(6).FacialRepresentation = imread ('H:\IMG-20250908-WA0019.jpg');
% Member 7
Members(7).Name = 'OBUA LOUIS';
Members(7).Age = '22';
Members(7).Religion = 'CATHOLIC';
Members(7).Course = 'AMI';
Members(7).Tribe = 'LANGI';
Members(7).Background = 'HUMBLE';
Members(7).Interests = 'VOLLEYBALL';
Members(7).HomeDistrict = 'LIRA';
Members(7).Village = 'SENIOR QUARTERS';
Members(7).FacialRepresentation = imread ('H:\IMG-20250909-WA0012.jpg');
% Member 8
Members(8).Name = 'ABONGO CHRISTOPHER';
Members(8).Age = '23';
Members(8).Religion = 'CATHOLIC';
Members(8).Course = 'WAR';
Members(8).Tribe = 'LANGI';
Members(8).Background = 'HUMBLE';
Members(8).Interests = 'INDOOR GAMES';
Members(8).HomeDistrict = 'LIRA';
Members(8).Village = 'SENIOR QUARTERS';
Members(8).FacialRepresentation = imread ('H:\IMG-20250908-WA0017.jpg');
```

```
% Member 9
Members(9).Name = 'NAMWANJE SAMALE';
Members(9).Age = '21';
Members(9).Religion = 'ANGLICAN';
Members(9).Course = 'PTI';
Members(9).Tribe = 'MUGANDA';
Members(9).Background = 'HUMBLE';
Members(9).Interests = 'DANCING & MOVIES';
Members(9).HomeDistrict = 'LUWEERO';
Members(9).Village = 'LUWEERO';
Members(9).FacialRepresentation = imread ('H:\IMG-20250907-WA0007.jpg');
% Member 10
Members(10).Name = 'NUWAMANYA MUGISHA EVANS';
Members(10).Age = '23';
Members(10).Religion = 'ANGLICAN';
Members(10).Course = 'APE';
Members(10).Tribe = 'MUKIGA';
Members(10).Background = 'LOVE!';
Members(10).Interests = 'DEBATE';
Members(10).HomeDistrict = 'KAMWENGE';
Members(10).Village = 'KAHUNGE';
Members(10).FacialRepresentation = imread ('H:\IMG-20250909-WA0010.jpg');
```

CHAPTER THREE

3. CHALLENGES, RECOMMENDATION AND CONCLUSION

3.1. CHALLENGES

- Understanding MATLAB syntax. Matlab has its own unique syntax, which can be challenging to learn, especially for those without prior programming experience.
- Visualizing data in matlab was challenging, especially when we were dealing with large complex datasets.
- Meeting assignment requirement was challenging especially when we were dealing with complex problems.

3.2. RECOMMENDATIONS.

- ✓ Start working on the assignment early to avoid last-minute rushes and ensure that we have enough time to test the code.
- ✓ Use Matlab built-in functions and tools to simplify the code
- ✓ Testing the code thoroughly to ensure that it works correctly and meets all the requirements of the assignment.
- ✓ Don't hesitate to seek help from the instructor and classmates when struggling with a concept or a problem.

3.3. CONCLUSIONS

- ✓ Matlab is a powerful tool for data analysis, visualization and simulation and is widely used in many fields, including engineering, physics and finance.
- ✓ Practice is a key to becoming proficient in Matlab, and working on assignments and projects and is an excellent way to gain hands-on experience.
- ✓ Attention to detail is important when working on matlab assignment, as small mistakes can lead to large errors