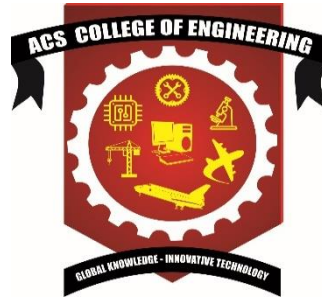


ACS COLLEGE OF ENGINEERING

DEPARTMENT OF CYBER SECURITY & ENGINEERING



LAB MANUAL

Subject Name: Technical writing with Latex

Subject Code: BCSL456C

SEMESTER – IV

Prepared by

*Dept. of Cyber Security,
ACSCE*

Vision

The vision of the Computer Science and engineering department is to provide excellence knowledge and enrich the problem-solving skills of the students in the field of CSE with a focus to prepare the students for industry need, carry out research, recognized as innovative leader, responsible citizen and improve the environment.

Mission

- Prepare the students with strong fundamental concepts, analytical capability, programming and problem-solving skills.
- Create an ambience of education through faculty training, self-learning, sound academic practices and research endeavors.
- Provide opportunities to promote organizational and leadership skills in students through various extra- curricular and co-curricular events
- To make the students as for as possible industry ready to enhance their employability in the industries.
- To improve department industry collaboration through internship programme and interaction with professional society through seminar/workshops.
- Imbibe social awareness and responsibility in students to serve the society and protect environment.

Experiment No. 1

1. Develop a LaTeX script to create a simple document that consists of 2 sections [Section1, Section2], and a paragraph with dummy text in each section. And also include header [title of document] and footer [institute name, page number] in the document.

Script:

```
\documentclass{article}
\usepackage[a4paper, margin=1in]{geometry}
\usepackage{fancyhdr}
\pagestyle{fancy}
\fancyhf{}
\lhead{\textit{Block Chain Technology}}
\lfoot{ACS College of Engineering}
\rfoot{\thepage}
\begin{document}
\section{Introduction}
Nowadays cryptocurrency has become a buzzword in both industry and academia. As one of the most successful crypto-currency. Bitcoin has enjoyed a huge success with its capital market reaching 10 billion dollars in 2016.
\section{Blockchain Architecture}
Blockchain is a sequence of blocks, which holds a complete list of transaction records like conventional public ledger. A block has only one parent block. It is worth noting that uncle blocks(children of the block's ancestors) hashes would also be stored in ethereal blockchain.
\end{document}
```

Output:

Block Chain Technology

1 Introduction

Nowadays cryptocurrency has become a buzzword in both industry and academia. As one of the most successful crypto-currency, Bitcoin has enjoyed a huge success with its capital market reaching 10 billion dollars in 2016.

2 Blockchain Architecture

Blockchain is a sequence of blocks, which holds a complete list of transaction records like conventional public ledger. A block has only one parent block. It is worth noting that uncle blocks(children of the block's ancestors) hashes would also be stored in ethereal blockchain.

Experiment No. 2

2. Develop a LaTeX script to create a document that displays the sample

Abstract/Summary

Script:

```
\documentclass[11pt]{article}
\usepackage[a4paper, margin=1in] {geometry}
\usepackage{setspace}
\doublespacing
\begin{document}
\begin{abstract}
In Adhoc Network group communication is more important, in which routing protocols play a
vital role for data transmission. With/Without using central server or access point, the Wireless
network form a temporary network with collection of wireless nodes in which, each node
changes randomly at different times. In order to establish data transmission between nodes,
multiple hops are needed because of limited range i.e. transmission rate. In this paper, we have
analyzed and simulated a proposed Wireless Local Area Network (WLAN) using different
routing protocols. The performances of different protocols are compared and analyzed using
Optimum Network Performance (OPNET) simulator tool in which metrics like delay,
throughput, packet delivery, load, Ethernet delay, are measured.
\end{abstract}
\end{document}
```

Output:**Abstract**

In Adhoc Network group communication is more important, in which routing protocols play a vital role for data transmission. With/Without using central server or access point, the Wireless network form a temporary network with collection of wireless nodes in which, each node changes randomly at different times. In order to establish data transmission between nodes, multiple hops are needed because of limited range i.e. transmission rate. In this paper, we have analyzed and simulated a proposed Wireless Local Area Network (WLAN) using different routing protocols. The performances of different protocols are compared and analyzed using Optimum Network Performance (OPNET) simulator tool in which metrics like delay, throughput, packet delivery, load, Ethernet delay, are measured.

Experiment No. 3

3. Develop a LaTeX script to create a simple title page of the VTU project Report [Use suitable Logos and text formatting]

Script:

```
\documentclass[12pt]{article}
\usepackage{graphicx}
\usepackage{setspace}
\usepackage{geometry}
\geometry{a4paper, margin=2cm}

\begin{document}
\begin{titlepage}

\centering
\textsc{\Large Visvesvaraya Technological University}\par
\textsc{Jnana Sangama, Belagavi, Karnataka} \par
\vspace{1cm}

\centering
\includegraphics[width=0.3\textwidth]{vtu logo.png}
\vspace{0.5cm}

\textbf{\huge Project Report on}\par
\vspace{0.5cm}

\textbf{\Large "Block Chain Technology"}\par
\vspace{0.5cm}

\textbf{\large Submitted in the partial fulfillment Requirement for the 4th Sem}\par
\vspace{0.5cm}

{\Large BACHELOR OF ENGINEERING} \par
In \par
```

Department of Computer Science and Engineering \par

{\large Kumar M (1AH22CS001)\par

\vspace{1cm}

\textbf{\large Under the Guidance of }\par

\vspace{0.5cm}

Dr. C. Lakshmi \par

Professor, Department of CSE \par

\vspace{0.5cm}

\centering

\includegraphics[width=0.3\textwidth]{acs logo.jpg}

\vspace{0.5cm}

{\Large ACS College of Engineering}\par

74, Kamipura Mysore Road, Bangalore-560074 \par

2024-25 \par

\vspace{0.2cm}

}

\end{titlepage}

\end{document}

Output:

VISHVESVARAYA TECHNOLOGICAL UNIVERSITY
JNANA SANGAMA,BELGAVI,KARNATAKA



Project Report on

”Block Chain Technology”

submitted in the partial fulfillment requirement for the 4th sem

BACHELOR OF ENGINEERING

In

Department of computer science and engineering

Kumar M (1AH22CS001)

under the guidance of

Dr.C.Lakshmi

Professor,Department of CSE



ACS College Of Engineering
74,Kamipura Mysore Road,Bangalore-560074
2024-25

Experiment No. 4

4. Develop a LaTeX script to create the Certificate Page of the Report

/* Save file as pg4*/

Script:

```
\documentclass[a4paper, 12pt]{article}
\usepackage{graphicx}
\usepackage{ragged2e}
\usepackage{xcolor}
\begin{document}
\include{certificate}
\end{document}

/* Save as certificate.tex */
\pagenumbering{roman}
\begin{center}
\textbf{\Large Visvesvaraya Technological University}\newline
\textbf{\small JnanaSangama BELAGAVI}
\newline
\newline
\centerline{\includegraphics[scale=.5]{vtu logo.png}}
\newline \newline \textbf{\small DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING}
\newline
\newline \textbf{\Large CERTIFICATE}
\end{center}
\vspace{5mm}
\justify{This is to certify that Mr. Suresh bearing USN:1AH20CS001 is a bonafide student of
Bachelor of Engineering course of the Department of Computer Science and Engineering,
VTU, Belgavi, affiliated to Visvesvaray Technological University, Belgavi. Project report on
"BLOCK CHAIN TECHNOLOGY" is prepared by him under the guidance of Mr. Charan M S
in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering
of Visvesvaraya Technological University, Belgavi, Karnataka.}
\newline
```

\newline

\newline \hspace{16mm} \hspace{16mm}.....

\newline

\newline

Mr. Charan M S \hspace{18mm} Dr. Senthil Kumaran T \hspace{09mm} Dr. AnandaGurdi

\newline

\newline Signature of Guide \hspace{13mm} Signature of HoD \hspace{11mm} Signature of Principal

\begin{center}

\vspace{10mm}

\textbf{\small EXTERNAL EXAMINER}

\end{center}

\vspace{5mm} Name of Examiners \hspace{60mm} Signature with date

\newline

\newline

1.

\newline

\newline

2.

Output:

Visvesvaraya Technological University
Jnana Sangama BELGAVI



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that Mr.Suresh bearing usn 1AH22CS001 ia a bonafide student of Bachelor of Engineering course of the Department of Computer Science and Engineering,VTU,Belgavi,affiliated to Visvesvaraya Technological University,Belgavi.Project report on "Block CHAIN TECHNOLOGY" is prepared by him under the guidance of Mr Charan M S in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering of Visvesvaraya Technological University.Belgavi,Karnataka

.....
Mr.Charan M S	Dr.Senthil Kumaran T	Dr.AnandaGurdi
Signature of Guide	Signature of HOD	Signature of Principal

EXTERNAL EXAMINER

Name of Examiners	Signature with date
1.	
2.	

i

Experiment No. 5

5. Develop a LaTeX script to create a document that contains the following table with proper labels

Script:

```

\documentclass{article}
\usepackage{array, booktabs, multicol, multirow}
\renewcommand{\arraystretch}{1.1}
\begin{document}
\centering
\textbf{\Large{Student Details and Marks}}
\vspace{0.1in}
\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
\multirow{2}{*}{\textbf{S.No}} & \multirow{2}{*}{\textbf{USN}} & & & \\
\multirow{2}{*}{\textbf{Student Name}} & \multicolumn{3}{c|}{\textbf{Marks}} & \\
\cline{4-6}
& & & \textbf{Microcontroller} & \textbf{Graphics} & \\
\textbf{Networks} & \\
\hline
\multicolumn{1}{|c|}{1} & \multicolumn{1}{c|}{1AH20CS001} & & & \\
\multicolumn{1}{c|}{RAJ} & 75 & 65 & 85 & \\
\hline
\multicolumn{1}{|c|}{2} & \multicolumn{1}{c|}{1AH20CS002} & & & \\
\multicolumn{1}{c|}{KAVIN} & 55 & 65 & 85 & \\
\hline
\multicolumn{1}{|c|}{3} & \multicolumn{1}{c|}{1AH20CS003} & & & \\
\multicolumn{1}{c|}{SRIMATHI} & 78 & 52 & 59 & \\
\hline
\end{tabular}
\end{table}
\end{document}

```

Output:

Student Details and Marks

S.No	USN	Student Name	Marks		
			Microcontroller	Graphics	Networks
1	1AH20CS001	Raj	75	65	85
2	1AH20CS002	Kavin	55	65	85
3	1AH20CS003	Srimathi	78	52	59

Experiment No. 6

6. Develop a LaTeX script to include the side-by-side graphics/pictures/figures in the document by using the subgraph concept.

Script:

```
\documentclass{article}
\usepackage{graphicx}
\usepackage{subcaption}
\begin{document}
    \begin{figure}
        \centering
        \begin{subfigure}{0.46\linewidth}
            \includegraphics[width=\linewidth]{vtu logo.png}
            \caption{VTU}
            \label{fig:subfig1}
        \end{subfigure}
        \hfill
        \begin{subfigure}{0.44\linewidth}
            \includegraphics[width=\linewidth]{acs logo.jpg}
            \caption{ACS}
            \label{fig:subfig2}
        \end{subfigure}
        \caption{Images Needed for VTU Reports}
        \label{fig:subfigures}
    \end{figure}
\end{document}
```

Output:



(a) VTU



(b) ACS

Figure 1: Images Needed for VTU Reports

Experiment No. 7

7. Develop a LaTeX script to create a document that consists of the following two mathematical equations

Script:

```
\documentclass[a4paper]{article}
\usepackage{inputenc}
\usepackage{amsmath,nccmath}
\usepackage{amsfonts}
\usepackage{amssymb}
\usepackage[left=2cm,right=2cm,top=2cm,bottom=2cm]{geometry}
\begin{document}
```

```
\section*{Equation 1}
```

```
\begin{fleqn}
  \[
    x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}
  \]

  \[
    = \frac{-2 \pm \sqrt{2^2-4*(1)*(-8)}}{2*1}
  \]

  \[
    = \frac{-2 \pm \sqrt{4+32}}{2}
  \]
\end{fleqn}
```

```
\section*{Equation 2}
```

```
\begin{fleqn}
  \[
    \varphi^{\lambda}_{\sigma} A_t = \sum_{\pi \in C_t}
  \]
```

```

sgn(\pi)\varphi^{\lambda}_{\sigma}\varphi^{\lambda}_{\pi}
\]

\[
= \sum_{\tau \in C_{\sigma t}}
sgn(\sigma^{-1}\tau\sigma)\varphi^{\lambda}_{\sigma}\varphi^{\lambda}_{\sigma^{-1}\tau\sigma}
\]

\[
= A_{\sigma t} \varphi^{\lambda}_{\sigma}
\]

\end{fleqn}

\end{document}

```

Output:

Equation 1

$$\begin{aligned} x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ &= \frac{-2 \pm \sqrt{2^2 - 4 * (1) * (-8)}}{2 * 1} \\ &= \frac{-2 \pm \sqrt{4 + 32}}{2} \end{aligned}$$

Equation 2

$$\begin{aligned} \varphi_{\sigma}^{\lambda} A_t &= \sum_{\pi \in C^{-t}} \text{sgn}(\pi) \varphi_{\sigma}^{\lambda} \varphi_{\pi}^{\lambda} \\ &= \sum_{\tau \in C^{-\text{sigmat}}} \text{sgn}(\sigma^{-1} \tau \sigma) \varphi_{\sigma}^{\lambda} \varphi_{\sigma^{-1} \tau \sigma}^{\lambda} \\ &= A - \sigma t \varphi_{\sigma}^{\lambda} \end{aligned}$$

Experiment No. 8

8. Develop a Latex script to demonstrate the presentation of Numbered theorems, definitions, corollaries, and lemmas in the document.

Script:

```
\documentclass{article}
\usepackage{amsthm}
\newtheorem{theorem}{Theorem}
\newtheorem{corollary}{Corollary}
\newtheorem{lemma}{Lemma}
\newtheorem{definition}{Definition}

\begin{document}

    \begin{theorem}
        In a right-angled triangle, the square of the hypotenuse side is equal to the sum
of squares of the other two sides.
        \[ x^2 + y^2 = z^2 \]
    \end{theorem}

    \begin{definition}[Absolute value function]
        The absolute value function can be specified as a two-part definition as follows:
        \\
        $
        |x| =
        \left\{
        \begin{array}{ll}
            x & \text{if } x \geq 0 \\
            -x & \text{if } x < 0
        \end{array}
        \right.
        $
    \end{definition}
```

```
\begin{corollary}
```

Any right triangle, the hypotenuse is greater than any one of the legs, but less than the sum of them

```
\end{corollary}
```

```
\begin{lemma}
```

Given two line segments whose lengths are a and b respectively there is a real number r such that $b=ra$.

```
\end{lemma}
```

```
\end{document}
```

Output:

Theorem 1. *In a right-angled triangle, the square of the hypotenuse side is equal to the sum of the squares of the other two sides.*

$$x^2 + y^2 = z^2$$

Definition 1 (Absolute value function). *The absolute value function can be specified as a two-part definition as follows:*

$$|x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}$$

Corollary 1. *Any right-angled triangle, the hypotenuse is greater than any one of the legs, but less than the sum of them.*

Lemma 1. *Given two segments whose lengths are a and b respectively there is a real number r such that $b=ra$.*

Experiment No. 9

9: Develop a LaTeX script to create a document that consists of two paragraphs with a minimum of 10 citations in it and display the reference in the section

Script

ref.bib

```
@INPROCEEDINGS{hardtoshare,  
  author={He, Ting and Khamfroush, Hana and Wang, Shiqiang and La Porta, Tom and  
  Stein, Sebastian},  
  booktitle={IEEE 38th International Conference on Distributed Computing Systems  
(ICDCS)},  
  title={It's Hard to Share: Joint Service Placement and Request Scheduling in Edge  
Clouds with Sharable and Non-Sharable Resources},  year={2018},  
  volume={},  
  number={},  
  pages={365-375},  
  doi={10.1109/ICDCS.2018.00044}  
}
```

```
@INPROCEEDINGS{multicell,  
  author={Poularakis, Konstantinos and Llorca, Jaime and Tulino, Antonia M. and  
  Taylor, Ian and Tassiulas, Leandros},  
  booktitle={IEEE Conference on Computer Communications (INFOCOM)},  
  title={Joint Service Placement and Request Routing in Multi-cell Mobile Edge  
Computing Networks},  
  year={2019},  
  volume={},  
  number={},  
  pages={10-18},  
  doi={10.1109/INFOCOM.2019.8737385}
```

}

@ARTICLE{bandwidth,

author={Poularakis, Konstantinos and Llorca, Jaime and Tulino, Antonia M. and Taylor, Ian},

journal={IEEE/ACM Transactions on Networking},

title={Service Placement and Request Routing in MEC Networks With Storage, Computation, and Communication Constraints},

year={2020},

volume={28},

number={3},

pages={1047-1060},

doi={10.1109/TNET.2020.2980175}

}

@ARTICLE{resource,

author={Ahmed, Shakil and Chowdhury, Mostafa Zaman and Sabuj, Saifur Rahman and Alam, Md Imtiajul and Jang, Yeong Min}, journal={IEEE Access}, title={Energy-Efficient UAV Relaying Robust Resource Allocation in Uncertain Adversarial Networks},

year={2021}, volume={9}, number={}, pages={59920-59934},

doi={10.1109/ACCESS.2021.3073015}}

@ARTICLE{resource2, author={Yang, Zhaohui and Pan, Cunhua and Wang, Kezhi and Shikh-Bahaei, Mohammad}, journal={IEEE Transactions on Wireless Communications},

title={Energy Efficient Resource Allocation in UAV-Enabled Mobile Edge Computing Networks}, year={2019}, volume={18}, number={9}, pages={4576-4589},

doi={10.1109/TWC.2019.2927313}}

@ARTICLE{offload, author={Apostolopoulos, Pavlos Athanasios and Fragkos, Georgios and Tsiropoulou, Eirini Eleni and Papavassiliou, Symeon}, journal={IEEE Transactions on Mobile Computing}, title={Data Offloading in UAV-assisted Multi-access Edge Computing Systems under Resource Uncertainty}, year={2021}, volume={}, number={}, pages={1-1},

doi={10.1109/TMC.2021.3069911}}

@INPROCEEDINGS{offload2, author={Zhou, Fuhui and Wu, Yongpeng and Sun, Haijian and Chu, Zheng}, booktitle={2018 IEEE International Conference on Communications (ICC)}, title={UAV-Enabled Mobile Edge Computing: Offloading Optimization and Trajectory Design}, year={2018}, volume={}, number={}, pages={1-6}, doi={10.1109/ICC.2018.8422277}}

@ARTICLE{trajectory, author={Wang, Kai and Zhang, Xiao and Duan, Lingjie and Tie, Jun}, journal={IEEE Transactions on Mobile Computing}, title={Multi-UAV Cooperative Trajectory for Servicing Dynamic Demands and Charging Battery}, year={2021}, volume={}, number={}, pages={1-1}, doi={10.1109/TMC.2021.3110299}}

@article{edgeuncertainty,
author = {Xu, Xiaolong and Cao, Hao and Geng, Qingfan and Liu, Xihua and Dai, Fei and Wang, Chuanjian},
title = {Dynamic resource provisioning for workflow scheduling under uncertainty in edge computing environment},
journal = {Concurrency and Computation: Practice and Experience},
volume = {n/a},
number = {n/a},
pages = {e5674},
keywords = {edge computing, SDN, uncertainty, workflow scheduling},
doi = {https://doi.org/10.1002/cpe.5674}
}

@ARTICLE{edgeuav, author={Qu, Yuben and Dai, Haipeng and Wang, Haichao and Dong, Chao and Wu, Fan and Guo, Song and Wu, Qihui}, journal={IEEE Journal on Selected Areas in Communications}, title={Service Provisioning for UAV-Enabled Mobile Edge Computing}, year={2021}, volume={39}, number={11}, pages={3287-3305}, doi={10.1109/JSAC.2021.3088660}}

main.tex

```
\documentclass{article}
\begin{document}
\begin{center}
\Large{\textbf{Routing Protocols}}
\end{center}
\section{Introduction}
```

In Adhoc Network group communication is more important, in which routing protocols play a vital role for data transmission \cite{hardtoshare, multicell, bandwidth}. With/Without using central server or access point, the Wireless network form a temporary network with collection of wireless nodes in which, each node changes randomly at different times \cite{edgeuav}. In order to establish data transmission between nodes, multiple hops are needed because of limited range i.e. transmission rate \cite{edgeuncertainty}. In this paper, we have analyzed and simulated a proposed Wireless Local Area Network (WLAN) using different routing protocols. The performances of different protocols are compared and analyzed using Optimum Network Performance (OPNET) simulator tool in which metrics like delay, throughput, packet delivery, load, Ethernet delay, are measured.

```
\bibliographystyle{IEEEtran}
\bibliography{ref}
\end{document}
```

Output:

Routing Protocols

1 Introduction

In Adhoc Network group communication is more important, in which routing protocols play a vital role for data transmission [1, 2, 3]. With/Without using central server or access point, the Wireless network form a temporary network with collection of wireless nodes in which, each node changes randomly at different times [4]. In order to establish data transmission between nodes, multiple hops are needed because of limited range i.e. transmission rate [5]. In this paper, we have analyzed and simulated a proposed Wireless Local Area Network (WLAN) using different routing protocols. The performances of different protocols are compared and analyzed using Optimum Network Performance (OP-NET) simulator tool in which metrics like delay, throughput, packet delivery, load, Ethernet delay, are measured.

References

- [1] T. He, H. Khamfroush, S. Wang, T. La Porta, and S. Stein, "It's hard to share: Joint service placement and request scheduling in edge clouds with sharable and non-sharable resources," in *IEEE 38th International Conference on Distributed Computing Systems (ICDCS)*, 2018, pp. 365–375.
- [2] K. Poularakis, J. Llorca, A. M. Tulino, I. Taylor, and L. Tassiulas, "Joint service placement and request routing in multi-cell mobile edge computing networks," in *IEEE Conference on Computer Communications (INFOCOM)*, 2019, pp. 10–18.
- [3] K. Poularakis, J. Llorca, A. M. Tulino, and I. Taylor, "Service placement and request routing in mec networks with storage, computation, and communication constraints," *IEEE/ACM Transactions on Networking*, vol. 28, no. 3, pp. 1047–1060, 2020.
- [4] Y. Qu, H. Dai, H. Wang, C. Dong, F. Wu, S. Guo, and Q. Wu, "Service provisioning for uav-enabled mobile edge computing," *IEEE Journal on Selected Areas in Communications*, vol. 39, no. 11, pp. 3287–3305, 2021.
- [5] X. Xu, H. Cao, Q. Geng, X. Liu, F. Dai, and C. Wang, "Dynamic resource provisioning for workflow scheduling under uncertainty in edge computing environment," *Concurrency and Computation: Practice and Experience*, vol. n/a, no. n/a, p. e5674.

Experiment No. 10

10. Develop a Latex script to design a simple tree diagram or hierarchical structure in the document with appropriate labels using the Tikz library

Script:

```

\documentclass{article}
\usepackage{tikz}
\begin{document}
\begin{center}
\Large{\textbf{Hierarchy of Operating Systems}}
\end{center}
\begin{figure}[h]
\centering
\begin{tikzpicture} [every node/.style = {shape=rectangle, rounded corners, draw, align=center}]
\path [draw,thick,-]
node (root)[red] {Operating Systems}
[sibling distance=45mm, level distance=25mm]
child {node [cyan] {Windows}
[sibling distance=25mm, level distance=25mm]
child { node [cyan] {Windows 10} }
child { node [cyan] {Windows 11} }
% child { node {Elementary} }
}
child {node [magenta] {Linux}
[sibling distance=25mm, level distance=25mm]
child { node [magenta] {Fedora} }
child { node [magenta] {Ubuntu} }
}
child {node [blue] {Mac OS}
[sibling distance=25mm, level distance=25mm]
child { node [blue]{Sierra} }
child { node [blue]{Mojave} }
};

```

\end{tikzpicture}

\caption{Operating Systems Family}

\end{figure}

\end{document}

Output:

Hierarchy of Operating Systems

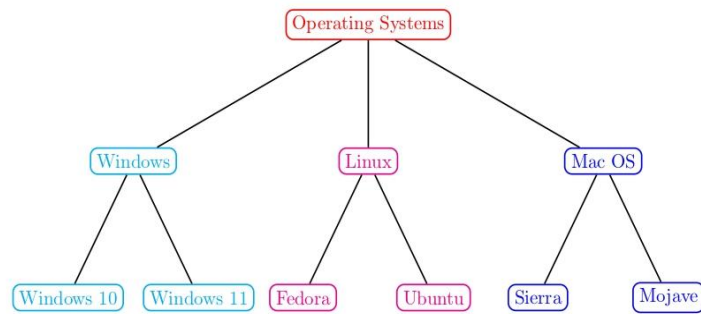


Figure 1: Operating Systems Family

Experiment No. 11

11. Develop a LaTeX script to present algorithm in the document using algorithm2e library

Script:

```
\documentclass{article}
\usepackage[linesnumbered,ruled,vlined]{algorithm2e}
\begin{document}
\begin{algorithm}
    \SetAlgoLined
    \caption{Algorithm for adding two numbers}
    \KwData{Two numbers,  $\backslash(a)$  and  $\backslash(b)$ }
    \KwResult{Sum of  $\backslash(a)$  and  $\backslash(b)$ , stored in  $c$ }
    \textbf{Input:}  $\backslash(a, b)$  \;
    \textbf{Output:}  $\backslash(c)$  \;
    Read  $\backslash(a), \backslash(b)$  \;
     $\backslash(c \leftarrow a + b)$  \;
    Print  $\backslash(c)$  \;
\end{algorithm}
\end{document}
```

Output:

Algorithm 1: Algorithm for adding two numbers

Data: Two numbers, a and b

Result: Sum of a and b , stored in c

1 **Input:** a, b ;
2 **Output:** c ;
3 Read a, b ;
4 $c \leftarrow a + b$;
5 Print c ;

Experiment No. 12

12. Develop a LaTeX script to create a simple report and article by using suitable commands and formats of user choice

Script:

```
\documentclass[6pt,a4paper]{report}
\usepackage[left=2cm,right=2cm,top=2cm,bottom=2cm]{geometry}
\author{Venkatesh Kumar M}
\title{Block Chain Technology}
\begin{document}
```

```
\maketitle
```

```
\chapter {Introduction}
```

```
\section{What is Block Chain Technology?}
```

Blockchain technology is an advanced database mechanism that allows transparent information sharing within a business network. A blockchain database stores data in blocks that are linked together in a chain.

```
\section{Architecture of Block chain Technology}
```

Blockchain is a sequence of blocks, which holds a complete list of transaction records like conventional public ledger. A block has only one parent block. It is worth noting that uncle blocks(children of the block's ancestors) hashes would also be stored in ethereal blockchain.

```
\section{Different Types of BlockChain Technology}
```

Blockchain is a sequence of blocks, which holds a complete list of transaction records like conventional public ledger. A block has only one parent block. It is worth noting that uncle blocks(children of the block's ancestors) hashes would also be stored in ethereal blockchain.

```
\chapter{Layered Architecture of Blockchain Ecosystem}
```

```
\begin{small}
```

```
\section{Components of BlockChain Technology}
```

```
\begin{itemize}
```

```
\item Node Application
```

```
\item Distributed Database
```

```
\item Consensus Algorithm
\item Virtual Machine
\item Peer-to-Peer Network
\end{itemize}

\section{Block Chain Layers}
\begin{enumerate}
\item Hardware/Infrastructure layer
\item Data layer
\item Network layer
\item Incentive laye
\item Contract layer
\item Application and Presentation layer
\end{enumerate}
\end{small}
\end{document}
```

Output:

Block Chain Technology

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Chapter 1

Introduction

1.1 What is Block Chain Technology?

Block Chain Technology is an advanced database mechanism that allows transparent information sharing within a business network. A block chain database stores data in blocks that are linked together in a chain.

1.2 Architecture of Block Chain Technology

Block Chain is a sequence of blocks, which holds a complete list of transaction records like conventional public ledger. A Block has only one parent block. It is worth noting that uncle blocks (children of the block's ancestors) hashes would also be stored in the blockchain.

1.3 Different Types of Block Chain Technology

Block Chain is a sequence of blocks, which holds a complete list of transaction records like conventional public ledger. A Block has only one parent block. It is worth noting that uncle blocks (children of the block's ancestors) hashes would also be stored in the blockchain.

Chapter 2

Layered Architecture of Block Chain Ecosystem

2.1 Components of Block Chain Technology

- Node Application
- Distributed Database
- Consensus Algorithm
- Virtual Machine
- Peer-to-Peer Network

2.2 Block Chain Layers

1. Hardware/Infrastructure Layer
2. Data Layer
3. Network Layer
4. Incentive Layer
5. Contract Layer
6. Application and Presentation Layer


```
        present=1;
        for(j=1;j<=n;j++)
            if(x[j]==1)
                System.out.print(a[j]+",");

        System.out.print("}="+d);
        System.out.println();
    }

}

}
if(present==0)
    System.out.println("Solution does not exists");

}

}
```

Output:

```
enter the number of elements of set
5
enter the elements of set
1 2 5 6 8
enter the positive integer sum 9
Subset={ 1,8,}=9
Subset={ 1,2,6,}=9
```

