**Experiment Project Documentation**

**Introduction**

This document captures the technical details related to the experiment development.

**Project**

**Domain Name:** Computer Science & Engineering

**Lab Name:** Computer Graphics

**Experiment Name:** Rasterization of Line

**Bresenham's line algorithm** is a line drawing algorithm that determines the points of an *n*-dimensional raster that should be selected in order to form a close approximation to a straight line between two points. It is commonly used to draw line primitives in a bitmap image (e.g. on a computer screen), as it uses only integer addition, subtraction and bit shifting, all of which are very cheap operations in standard computer architectures. It is an incremental error algorithm. It is one of the earliest algorithms developed in the field of computer graphics. An extension to the original algorithm may be used for drawing circles.

**Purpose of the project**

The purpose of the project is to convert the **Rasterization of Line** experiment simulation from **Java** to **JavaScript**.

**Project Developers Details**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.NO** | **Names** | **Year of Study** | **Role** | **Email-ID** | **GitHub handles** |
| 1. | Prince Pathak | 3rd Year B.Tech CSE | Intern | princepathak67@gmail.com | princepathak |

**Technologies and Libraries**

**Technologies:**

1. HTML
2. CSS
3. JavaScript

**Libraries:**

1. [D3](https://d3js.org/)

**Development Environment**

**OS:** Windows 10

**Bandwidth:** 100Mbps

**Documents:**

|  |  |  |
| --- | --- | --- |
| **S.NO** | **Link to Document** | **Role** |
| 1. | Procedure | This document captures the instructions to run the simulations |
| 2. | Test Cases | This document captures the functional test cases of the experiment simulation |
| 3. | Code Documentation | This document captures the  details related to code |

**Process Followed to convert the experiment**

1. Understand the assigned experiment Java simulation
2. Understanding the experiment concept
3. Re-implement the same in JavaScript

**Value Added by our Project**

1. It would be beneficial for engineering students
2. Highly beneficial for tier 2 and tier 3 college students who can use this to learn and understand the concept of perception learning.

**Risks and Challenges**

Challenges faced are with dynamic updates of the raster with fixed frame size.

**Issues:**

No issues with the experiment.