**Link** **Shortener**

**Introduction** Link shorteners are commonly used tools that transform lengthy URLs into more manageable, short links that are easier to share and remember. While the basic functionality of a link shortener is straightforward, this project aims to explore and expand the capabilities of this seemingly simple technology.

**Why Use a Link Shortener?** Imagine trying to communicate the full name of Mr. Iyer from the movie *Dhamaal* (2007) every time you referred to him. His full name is "Shivavenkata Srinivasna Trichipalli Yekeparampir Perambdur Chinnaswami Muttuswami Venugopal Iyer", but for ease, we simply call him Iyer. Similarly, long URLs can be cumbersome and error-prone when shared; link shorteners condense these URLs into digestible snippets that are easier to handle and remember.

**How It Works** At its core, a link shortener requires minimal space and processing power. It involves storing the original URL and assigning it a unique shortcode. This relationship is akin to using variables in programming, where the variable name is used to reference the stored data without needing to recall the data itself.

**Motivation for This Project** During a recent internship, an incident involving a QR code linked to a registration form highlighted the limitations of using external link shortening services. The link was mistakenly blocked as suspicious, causing confusion and reducing event participation. This incident underscored the need for a reliable, in-house URL shortening solution that organizations can control directly, ensuring stability and access when most needed.

**Current Features**

* **Custom Shortcodes**: Customize the ending of the shortened URL.
* **Link Management**: Modify existing links; change both the destination URL and the shortcode at any time.
* **QR Code Generation**: Automatically generate QR codes for links by simply appending ".qr" to any shortcode.
* **Dashboard**: A user-friendly dashboard for creating, viewing, and managing shortened links with options to copy, edit, or delete each link.

**Proposed Features**

* **Analytics**: Track link usage with detailed analytics, including access timelines and device usage statistics.
* **Time Bomb Links**: Create links that automatically expire after a set period or event, perfect for time-sensitive content like registration deadlines.
* **Enhanced Security with Authentication**: Implement user authentication to ensure that only authorized personnel can create or modify links, making this tool particularly suited for corporate environments.

**Benefits of an In-House Solution** Using a dedicated link shortener provides significant advantages:

* **Control**: Full authority over link availability and management.
* **Security**: Reduced risk of links being mistakenly flagged or blocked.
* **Customization**: Tailor the tool's functionality to meet specific organizational needs.
* **Cost-Effective**: Can be hosted economically on low-cost cloud instances or on-premises.