BRR
Technology Solutions

PROJECT PROPOSAL DOCUMENT

Project Name: Predictive Dynamic Authentication System (*PDAS*) for Cybersecurity Enhancement

Date: December 2024

Industry Details

Company Name: BRR Technology Solutions
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Company address: 21/296 Marrickville Road, Marrickville NSW 2204, Sydney, Australia
Company Profile: Full-service technology Consultancy company delivering high performing and advanced functionality software solutions for growing companies.
Website: https://brrtechnology.com

Industry Assigned Supervisor Detail

Contact Name: Raafat Alsameraai
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Intern Name: (Fiona) Yuyan Yang

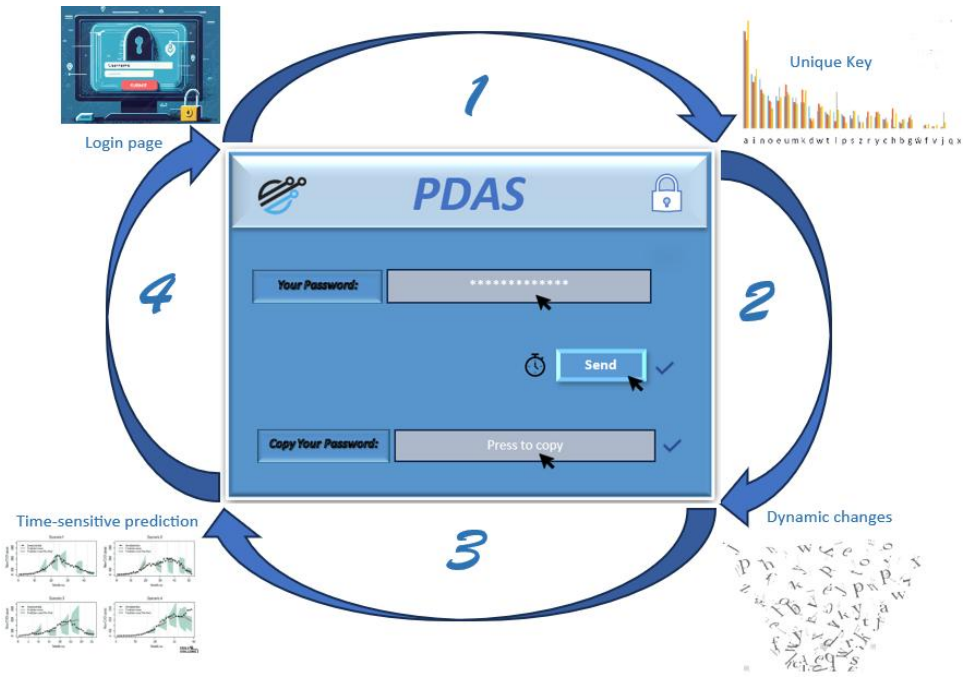
Internship Start Date: 09 Dec. 2024
Internship End Date: 28 Feb. 2025

Phase: Design, Programming & Software Development

Project Proposal

Background and Rationale:

In the ever-evolving landscape of cybersecurity, traditional static password systems are increasingly vulnerable to sophisticated attacks such as brute force, phishing, and credential stuffing. To counter these threats, there is an urgent need for advanced, adaptive security measures. Predictive Dynamic Authentication System (**PDAS**) represent an innovative approach by generating time-sensitive, context-aware passwords that are difficult for attackers to predict and exploit. This project aims to enhance cybersecurity by developing and implementing a **PDAS**, providing a robust and dynamic authentication mechanism that adapts to changing threat landscapes, see picture 1.



Picture 1: Predictive Dynamic Authentication System (*PDAS*)

Goals and Objectives:

The primary goals of this project include:

- Create a Predictive Dynamic Authentication System (PDAS) that generates unique encrypted, time-sensitive passwords based on dynamic and predictive algorithm.
- Ensure seamless integration of the PDAS with authentication frameworks for compatibility and ease of deployment.

- Strengthen authentication processes by minimizing the vulnerabilities associated with static passwords.
- Conduct comprehensive testing and validation of the PDAS to evaluate its effectiveness in preventing unauthorised access.
- Produce detailed documentation and guidelines for the deployment, and configuration of the PDAS to ensure effective adoption.

Desired Outcomes/Deliverables:

- A fully functional Predictive Dynamic Authentication System prototype.
- Modules for popular authentication frameworks to facilitate seamless deployment.
- Comprehensive documentation detailing system architecture, installation procedures, and user guidelines.
- Reports to summarize the results of performance, security, and usability testing.

Resources and Datasets:

- Access to computers and servers for development, testing, and deployment.
- Development environments, programming languages for ML, front-end and back-end (such as Python, C#, PHP and JavaScript), and necessary libraries to develop PDAS.
- Access to dataset/ database for training predictive models and testing the system.
- Existing authentication frameworks and systems for real-world applicability.

Additional Information:

By developing a Predictive Dynamic Authentication System, this project aims to provide a cutting-edge solution that significantly improves the security of authentication processes, making it challenging and harder for attackers to gain unauthorized access.