

A Practical Implementation of Parking Lot Management Using Token System Based on Object-Oriented Programming (Java)

Sunny Wankhede¹, Ms. Punashri Patil², Rupesh Zanwar³, Pranav Tilekar⁴

Assistant Professor, Department of Information Technology¹

Under Graduate Student, Department of Information Technology^{1,3,4}

AISSMS's Institute of Information Technology, Pune, Maharashtra, India

Abstract: *With the increase in the number of people living in cities and the number of private cars, parking is becoming an issue of concern. Most parking spaces have manual parking systems, which often lead to issues such as incorrect billing, improper parking slot usage, data loss, and lack of effective tracking. Such parking systems cannot handle large volumes of cars effectively. This project aims to create and implement a parking lot management system using the token system with object-oriented programming (OOP) using Java as the programming language. The project aims to create classes representing real-world objects, such as cars, parking slots, tokens, and bills. The project will use essential OOP principles, including encapsulation, constructors, method overloading, static variables, object references, and class interactions. The study illustrates the use of OOP to create effective and efficient programming languages. OOP is more effective in creating programming languages compared to procedural programming, especially if the system is likely to increase in size. The object-oriented programming approach is more organized and flexible.*

Keywords: Object-Oriented Programming, Parking Lot Management, Token System, Java, Encapsulation, Modularity, Static Variables, Constructor Overloading

