CHAPTER 1. INTRODUCTION

Drugs undergo through multiple designation in their development, including being assigned a trade-mark name, non-proprietary name, and pharmaceutical code (Jerome & Alessandri, 1965). These designations help in maintaining the flow & storage of information between new and old drug products. Among this information include drug-drug interactions (DDIs) where it is defined as an event when the effects of one drug can alter the effects of other drugs (Roblek et al., 2014). This information is important to be considered and kept because it can prevent adverse drug reactions that lead to drug toxicity in a patient. Electronic databases are usually developed as a way to store this information (Vonbach et al., 2008).

These electronic databases, however, are not all freely available and some require either paid subscriptions or extra authentication. As such, it becomes extremely difficult to do data comparison between their drug product and local drug products from Indonesia. One of the freely available web-based electronic databases for drug information is Drugbank which contains data of drugs, their mechanisms, their interactions, and their targets (Wishart et al., 2018). Although this increases the ease to do data comparison with local Indonesian drug products, the lack of a national drug database and a national guideline for drug storage information in Indonesia still makes it difficult. As such, developing a database for local drug products and a system that allows for DDI screening should be of importance.

This thesis project proposes the development of a local drug database that can store both drug and DDI information. The database will be developed using the Structure Query Language (SQL) programming language and a website will also be developed so the data may be viewed by the public. This thesis project also proposes developing a fully automated webserver system based on the Apache Hypertext Transfer Protocol (HTTP) Server environment that allows DDI data from local sources (hospitals, research institutions, etc.) to be immediately compared and matched with DDI data from Drugbank. Once matched, the data will immediately be stored in the local database so it

may be used for reference without having to go back to Drugbank for comparison every time there's a new input **[Figure 1]**. This thesis project is part of a larger project based on i3L's and Liramedika Hospital's collaboration to create a personalized DDI database for specific Indonesian local drugs. The scope of this project is only to create a prototype of the database and fully-automated search & match system.

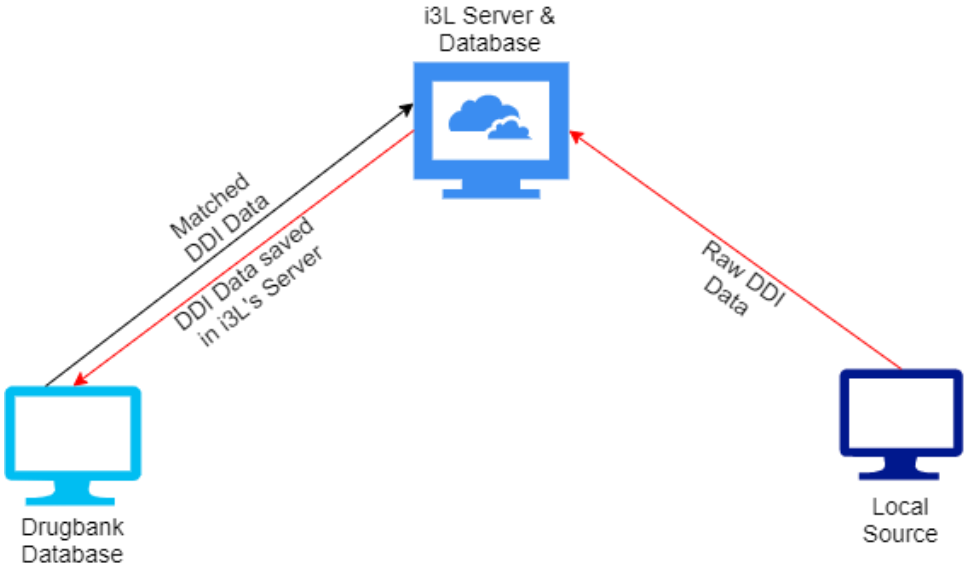

Figure 1. Schematic of the fully automated system to match DDI data from local sources to the Drugbank Database and record it into a local server & database for future references.