Personal Project - Scope of the Music Recommendation System
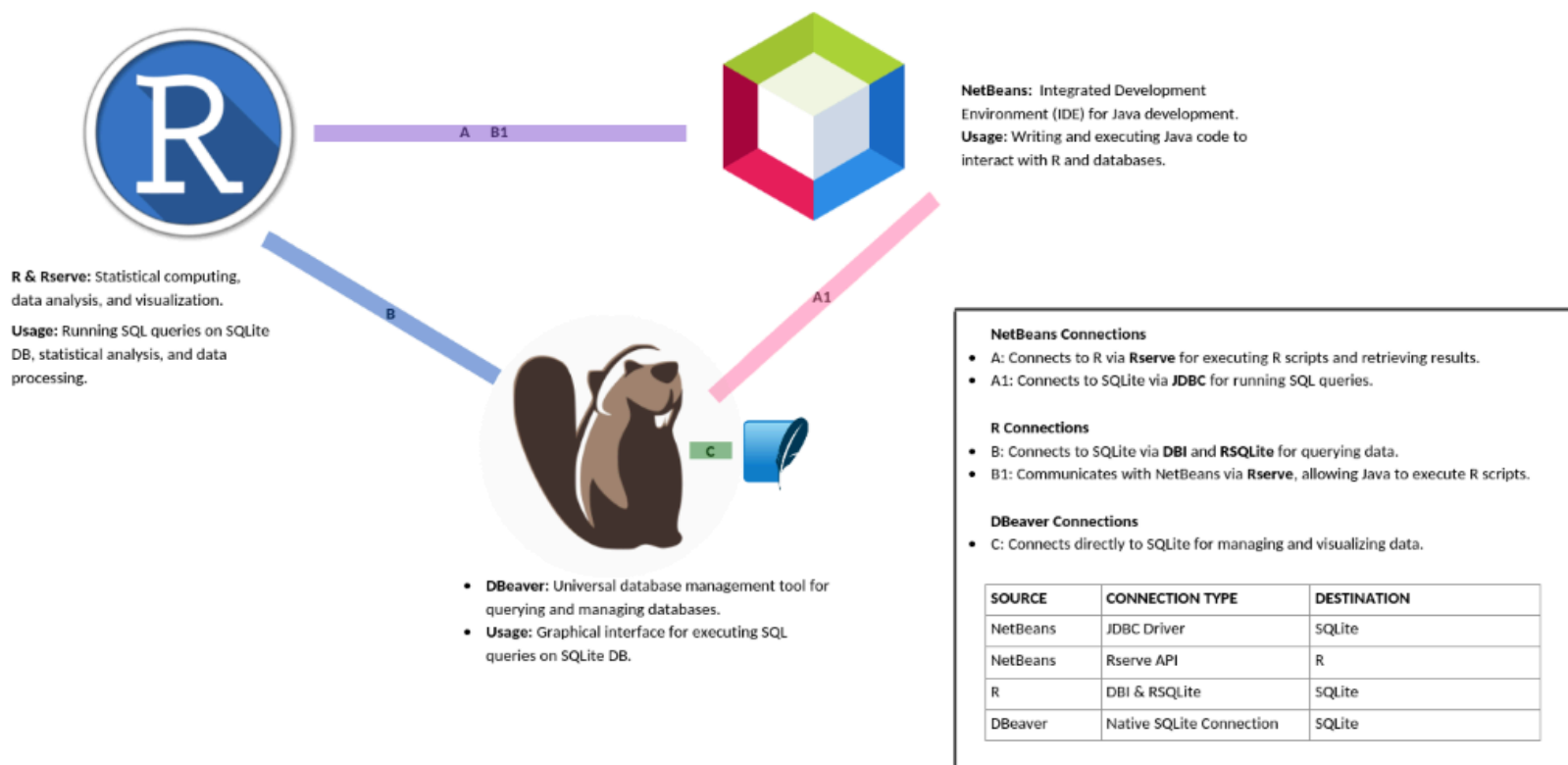
This system integrates **Java (NetBeans), R, and SQLite (DBeaver)** to analyze customer purchasing trends and recommend music based on past purchases. Users enter details such as **favorite genres, past purchases, and listening preferences** via a **Java-based mobile/desktop app**. This data is stored in an **SQLite database (Chinook dataset in DBeaver)**, processed in **R using machine learning models**, and results are sent back to the user. The system also logs predictions for future validation and **quality review**, improving recommendation accuracy over time.

System Architecture Diagram

Friday, February 28, 2025   3:13 PM

R & Rserve: Statistical computing, data analysis, and visualization.

Usage: Running SQL queries on SQLite DB, statistical analysis, and data processing.

NetBeans: Integrated Development Environment (IDE) for Java development.
Usage: Writing and executing Java code to interact with R and databases.

A   B1

B

A1

C

- **DBeaver:** Universal database management tool for querying and managing databases.
- **Usage:** Graphical interface for executing SQL queries on SQLite DB.

NetBeans Connections
- A: Connects to R via **Rserve** for executing R scripts and retrieving results.
- A1: Connects to SQLite via **JDBC** for running SQL queries.

R Connections
- B: Connects to SQLite via **DBI** and **RSQLite** for querying data.
- B1: Communicates with NetBeans via **Rserve**, allowing Java to execute R scripts.

DBeaver Connections
- C: Connects directly to SQLite for managing and visualizing data.

SOURCE	CONNECTION TYPE	DESTINATION
NetBeans	JDBC Driver	SQLite
NetBeans	Rserve API	R
R	DBI & RSQLite	SQLite
DBeaver	Native SQLite Connection	SQLite

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Process Flow Overview: Music Recommendation System

This diagram illustrates how **user data flows** through the system, from input submission in the Java-based mobile/desktop app to machine learning analysis in R, and back to the user with personalized music recommendations.