Migration tools

1 Definition and Importance

Migration tools are tools that handle the schema of the database such as creating new tables, editing fields in those tables or deleting them.

And it's important because they track the changes of the database and apply new migrations if they exist without reapplying the old ones and if there are concurrent hits it ensures that the database will just apply migration from the first hit.

Without them the following functionality will become harder:

- Track the changes of the schema and who applied the change
- Rolling back
- Team collaboration because if all the team work on one file the conflicts will arise.

2 Popular tools

The most popular tools are **Flyway** and **Liquibase,** both are open-source and is based on java and support integration with build tools such as Mavin and Gradle.

2.1 Differences between Flyway and Liquibase

- **Liquibase** supports SQL, YAML, XML and JSON formatting while **Flyway** only supports SQL.
- **Liquibase** supports NoSQL DB while **Flyway** supports only SQL.
- **Flyway** enforces a naming convention that includes the version number for execution order while **Liquibase** doesn't enforce a naming convention and provides ordering through the changelog file.

- In **Liquibase** you can organize the migration files easily and create subdirectories because you can specify the path in the changelog file.
- **Liquibase** provides automatic rollbacks where you can rollback to a certain migration or a certain a date while in **Flyway** you have to write undo scripts and it's only in paid versions.

Feature	Liquibase	Flyway
Supported formats	SQL, YAML, XML, JSON	SQL
Supported databases	SQL DB, NoSQL DB	SQL DB
Naming convention	Doesn't enforce	Enforce
Execution order	Through changelog file	Through naming convention
Files organization	Yes	No
Rollback	Automatic	Through undo scripts

3 Conclusion

In conclusion **Flyway** is easier and less overhead and is great for simple projects while **Liquibase** is more flexible and has more features which can enhance the quality of the project.