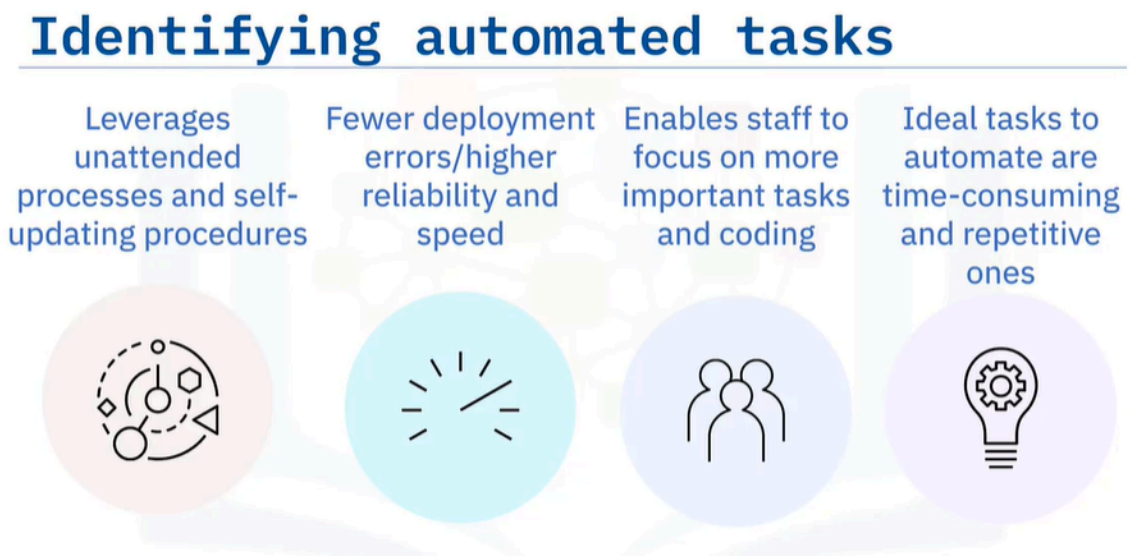
Automating Database Tasks

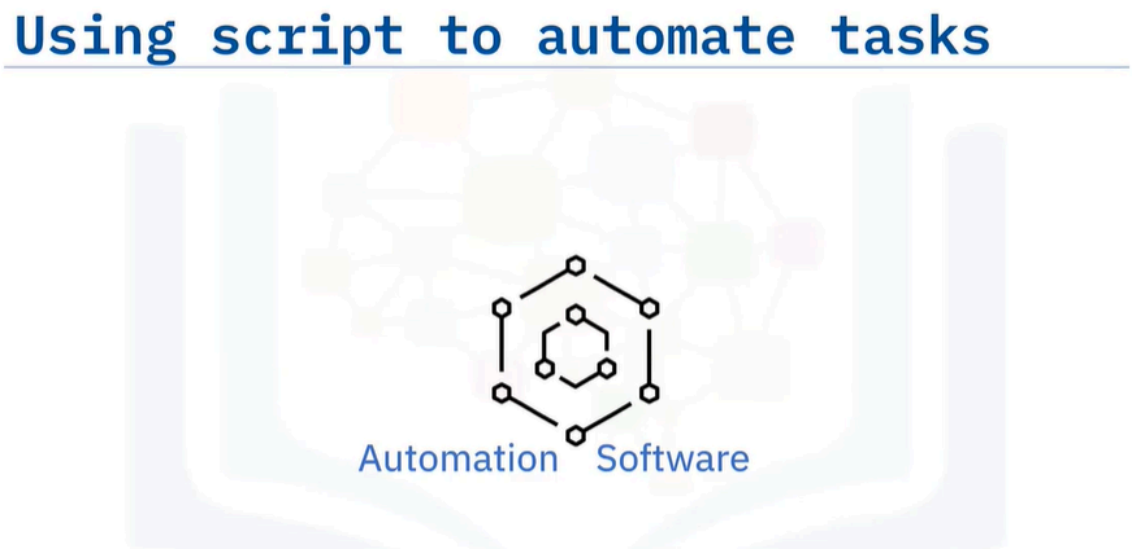
Database automation is like having a smart assistant that helps manage and take care of your database without needing constant supervision. Imagine you have a garden, and instead of watering the plants yourself every day, you set up a sprinkler system that automatically waters them at the right times. Similarly, database automation uses special processes and scripts to perform routine tasks, such as checking the health of the database, backing up data, or cleaning up old logs, all on their own. This makes managing databases faster and reduces the chances of mistakes.

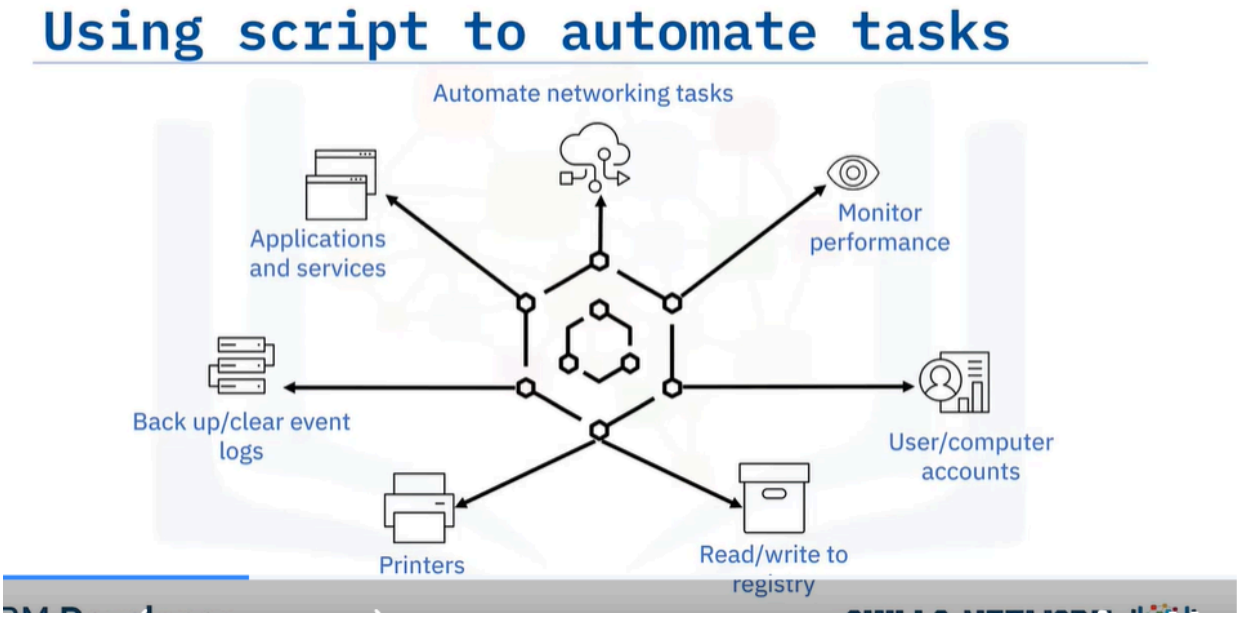
By automating these tasks, you free up time for yourself or your team to focus on more important work, just like how you can spend more time enjoying your garden instead of watering it. Plus, it helps ensure that everything runs smoothly and efficiently, just like a well-maintained garden flourishes with the right care.



- Database automation: Uses unattended processes and self-updating procedures for administrative tasks leveraging existing processes and tools to make administration tasks simpler and quicker. Results in fewer deployment errors and higher reliability and speed on change implementations. Frees up staff otherwise occupied updating code and performing other work. And

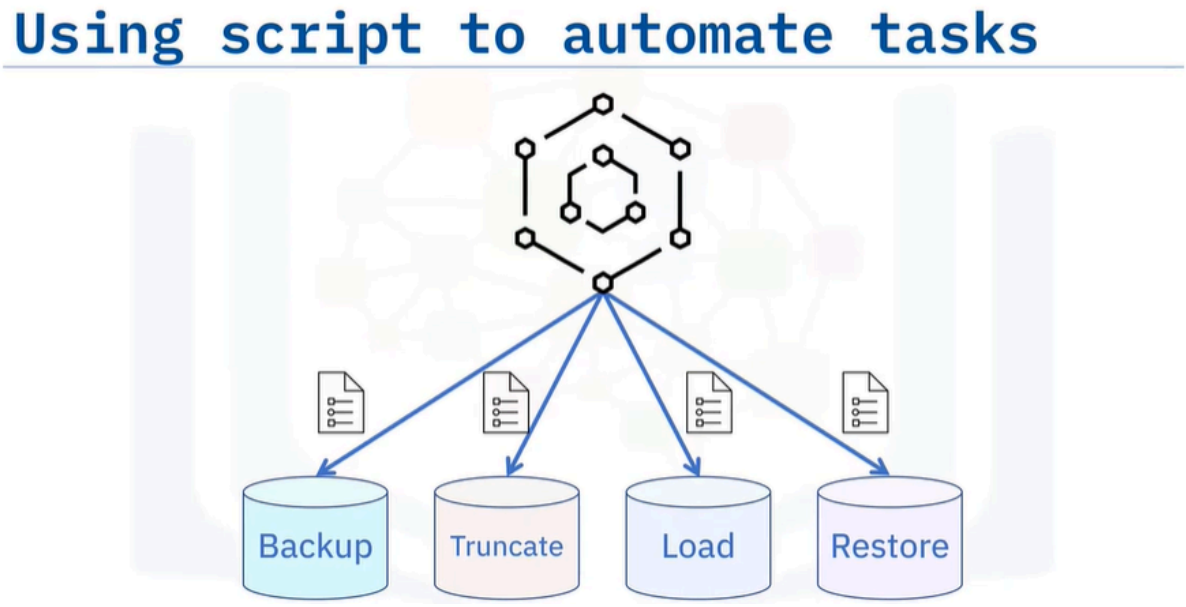
Works best with tasks that are time-consuming yet repetitive, such as database health check, alerts, and server/database maintenance.

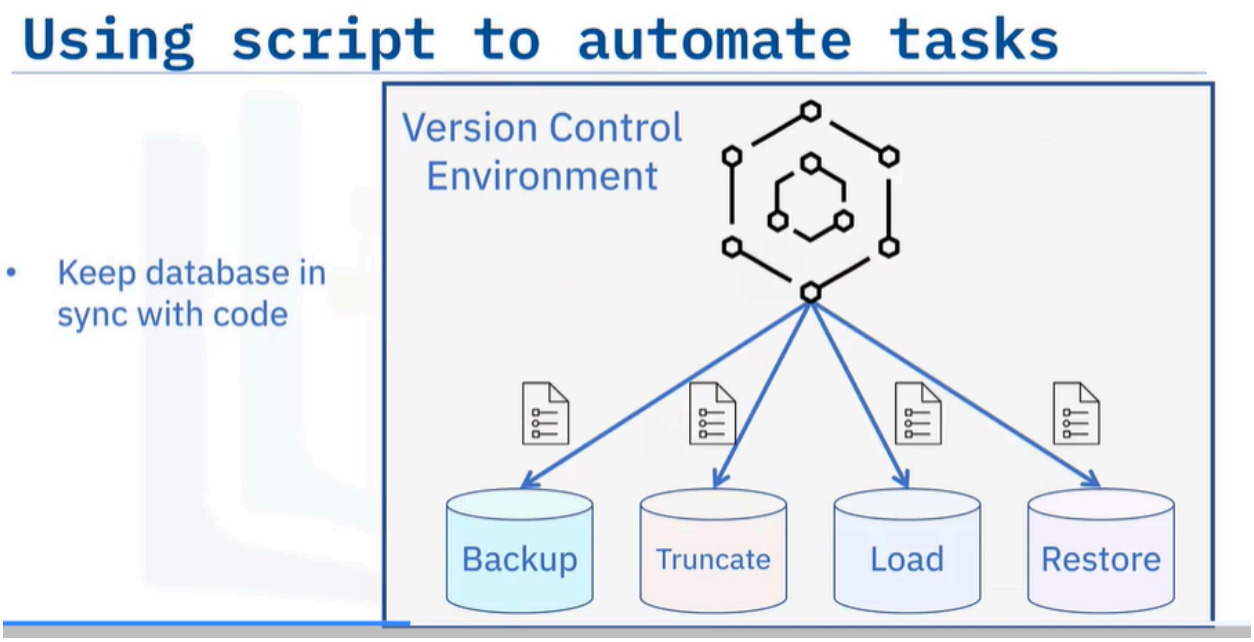




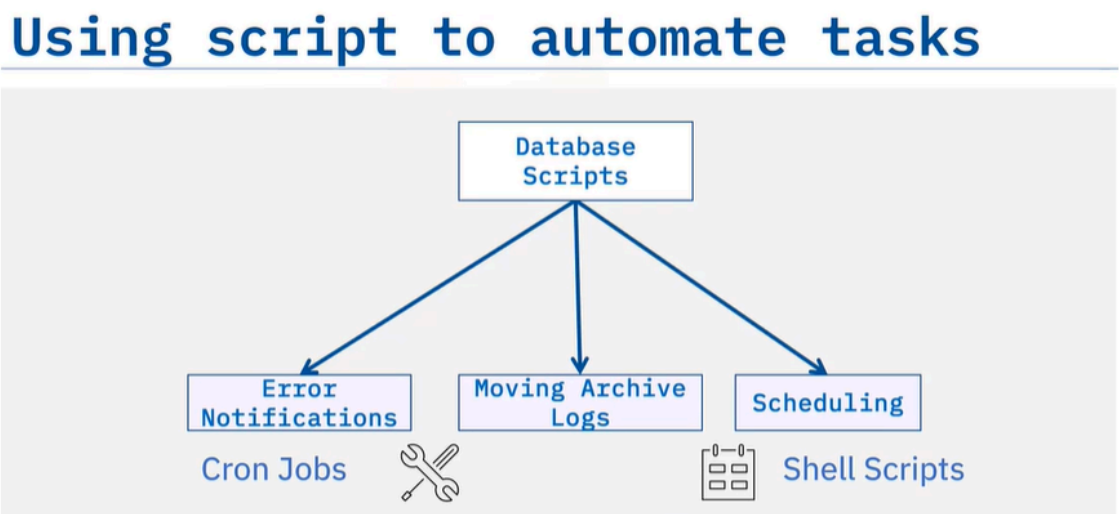
- Script automation is the process of using software to leverage and re-use existing scripts to deliver automation in a managed framework without requiring custom scripts to be developed and maintained each time. Scripts

are written to carry out routine, yet important, jobs which include: Backing up and clearing event logs Automating networking tasks Monitoring system performance Reading and writing to the registry Managing various user accounts, computer accounts, printers, and applications and services. There are several methods and tools for automating most database administration tasks. Some of these come built into a database, and others are performed by DBAs and developers either via scripts or database code.

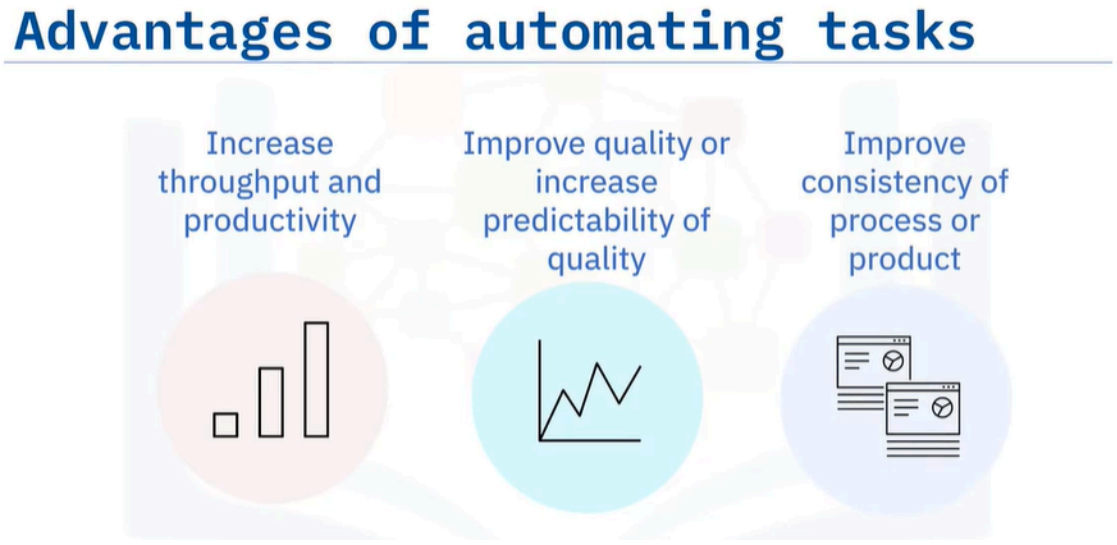




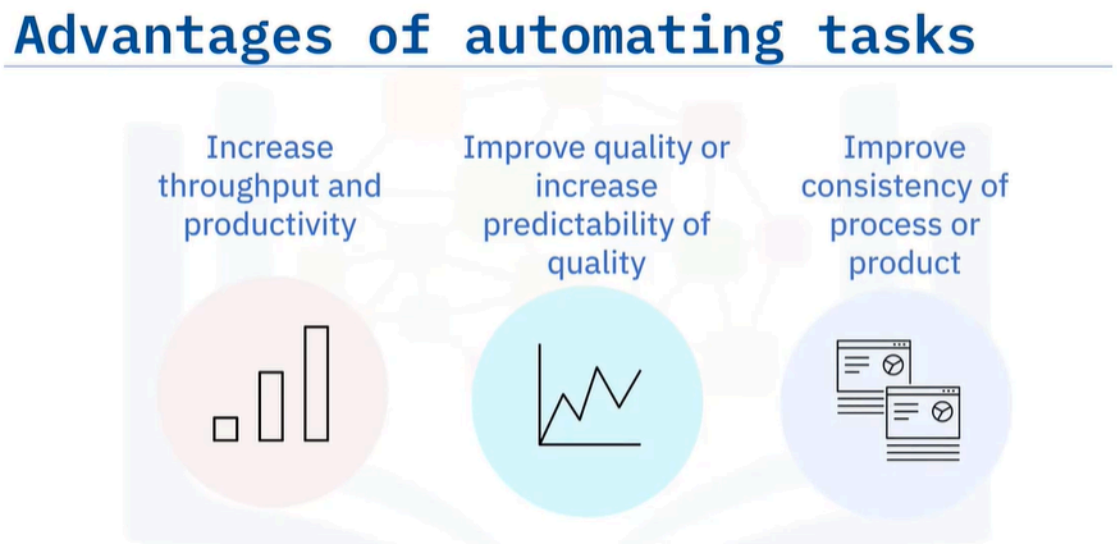
- Common scrips that DBAs can write include processes to: backup, truncate, load, and restore databases. When writing, updating, and maintaining scripts, it is important to have a version control system that keeps track of and retains an incremental history of code and database changes. If necessary, the DBA can restore the database to a previous version if an error or other issue occurs. Database scripts work the best when developing within a version control environment. The primary goal is to keep the code in sync with the database.



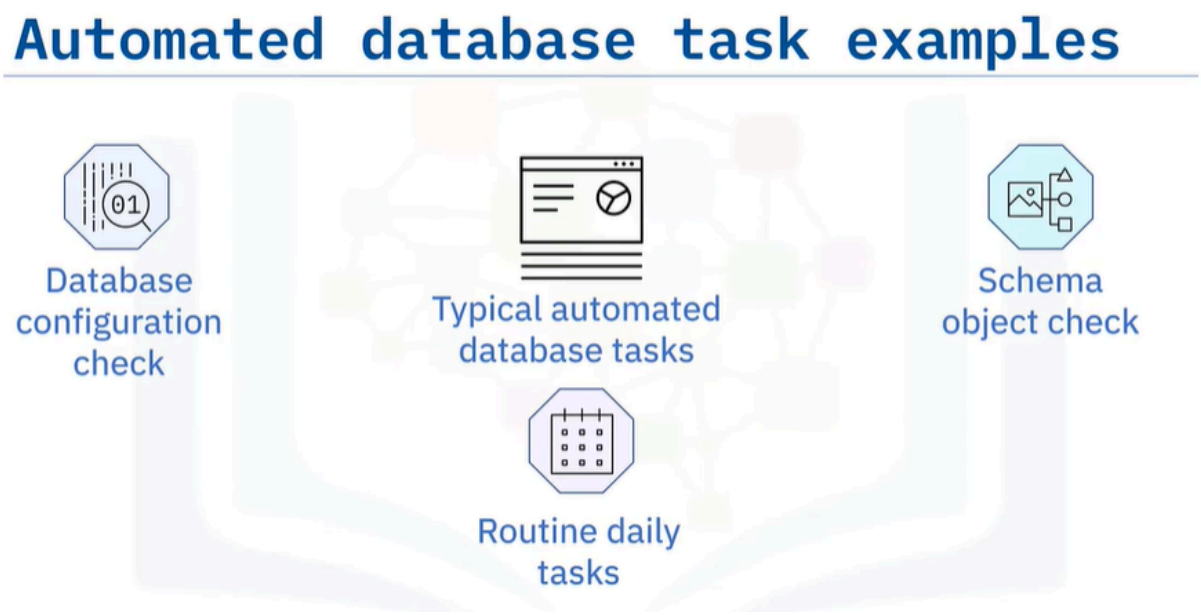
- You can also write scripts to perform certain database administrator (or DBA) tasks, such as: sending error notifications, moving archive logs from one storage to another storage container, scheduling reports, and so on. DBAs can also create scripts that are useful for the deployment of code changes from database to database. There are several ways for automating most database administration tasks; these include tools or schedulers, such as cron jobs, and scripts using shell, Python or other scripting languages.



- There are many good reasons why you would want to automate database tasks that include: to increase throughput or productivity, to improve quality or increase the predictability of quality, to improve the robustness (or consistency), of processes or product, to increase consistency of output or results, to free up workforce to take on other roles, and to provide higher-level jobs in the development, deployment, maintenance and running of the automated processes.



- You can automate tasks such as: Database Health Check – the process of inspecting a database to see how healthy and efficient the system is. Alert Log File Cleanup – the process of deleting the chronological log of messages and errors written out by the database. Typical messages found in this file include database startup, shutdown, log switches, space errors, and so on. Trace File Cleanup – the process that deletes the trace file, or backup file, which is a snapshot that shows the process that was executing and modules that were loaded for an app at a point in time. And Data Dictionary Statistics – the process where the system gathers a collection of names, definitions, and attributes about data elements that are being used or captured in a database, information system, or part of a research project. A Data Dictionary provides metadata about data elements.



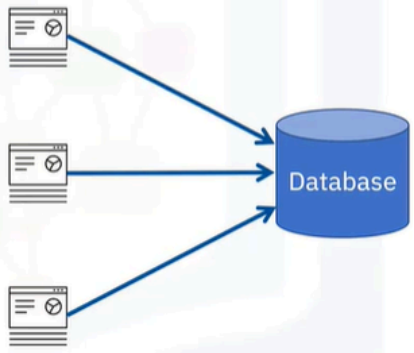
- You could also automate: Database Configuration Check – the process to check to see whether your database configuration still complies with the current recommendations for your system. Schema Object check – the process of monitoring your database changes to quickly identify the weak links and problematic queries. And Routine Daily Tasks using GUI Tools – the process of performing everyday functions in the database with a GUI, for example running reports and backing up files.

Automating database testing

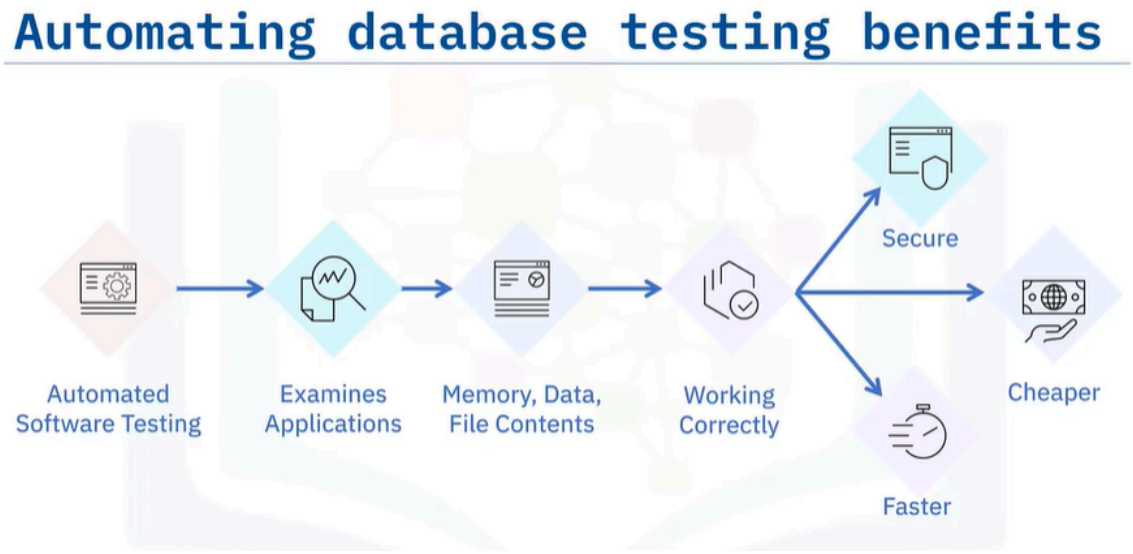
- Information in database is correct and running properly within controlled testing environment
- Schema
- Tables
- Triggers

Automating database testing

- Prevents data loss
- Saves aborted transaction data
- Prohibits unauthorized access
- Checks data integrity and consistency



- Database testing involves checking the database to ensure that everything is correct and running properly using a controlled testing environment.
- Database testing involves checking the schema, tables, triggers, and so on. Database testing is important in software testing because it ensures data values and information received and stored into the database are valid. Database testing: Helps to prevent data loss, saves aborted transaction data, prohibits unauthorized access to the information, and checks the integrity and consistency of data.



- Automated software testing can look inside an application and see memory contents, data tables, file contents, and internal program states to determine if the product is behaving as expected. Once created, automated tests can be run repeatedly at no additional cost and are much faster and more secure than manual tests. Automated tests can increase the depth and scope of tests to help improve quality and security of automation database testing.

Automating database testing benefits