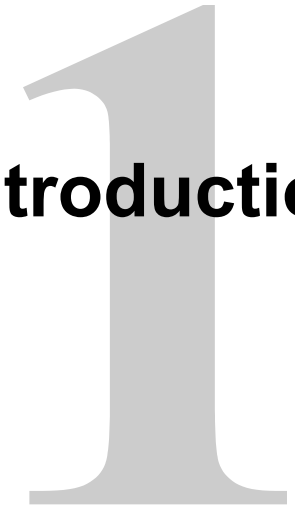


Introduction

Course Objectives

After completing this course, you should be able to do the following:

- Install, create, and administer Oracle Database 10*g*
- Configure the database for an application
- Employ basic monitoring procedures
- Implement a backup and recovery strategy
- Move data between databases and files

Suggested Schedule

1. Introduction
2. Installation
3. DB Creation
4. Instance

5. Storage
6. Users
7. Schema
8. Data & Concurrency

9. Undo
10. Security
11. Network
12. Proactive Maintenance

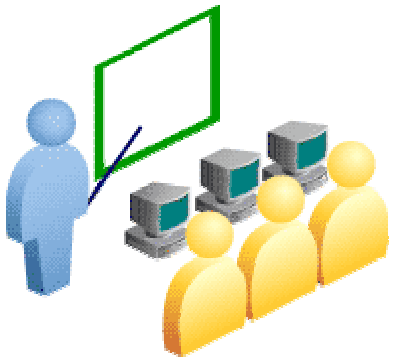
13. Performance
14. Backup & Recovery Concepts
15. Backup

16. Recovery
17. Flashback
18. Moving Data

Lesson Objectives

After completing this lesson, you should be able to do the following:

- **Describe the course objectives**
- **Explain the Oracle Database 10*g* architecture**



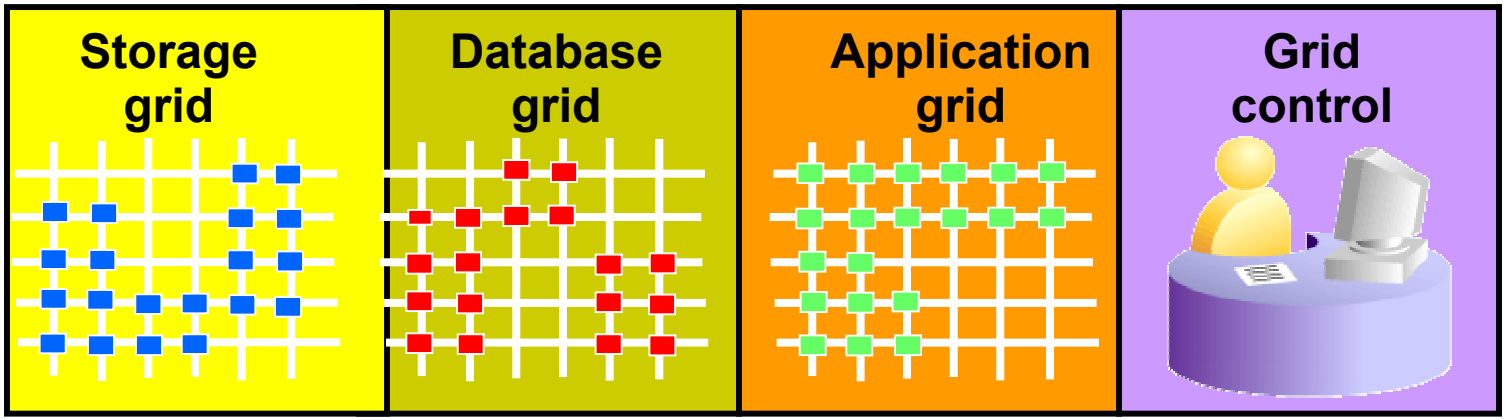
Oracle Products and Services

- **Oracle databases**
- **Oracle Application Server**
- **Oracle applications**
- **Oracle Collaboration Suite**
- **Oracle Developer Suite**
- **Oracle services**

ORACLE

Oracle Database 10*g*: "*g*" Stands for Grid

- Global Grid Forum (GGF)
- Oracle's grid infrastructure:
  - Low cost
  - High quality of service
  - Easy to manage



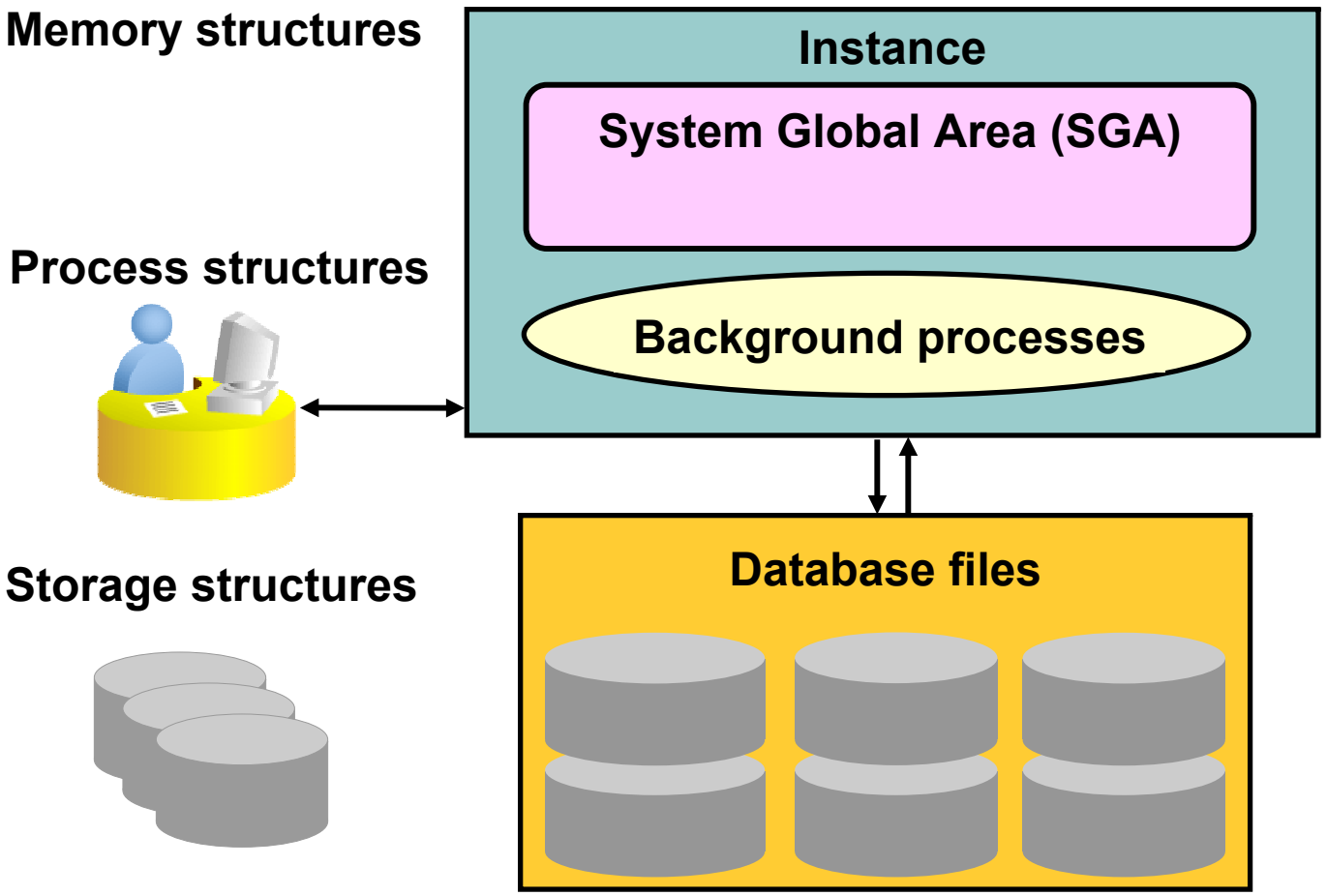
Oracle Database Architecture

An Oracle server:

- Is a database management system that provides an open, comprehensive, integrated approach to information management
- Consists of an Oracle instance and an Oracle database

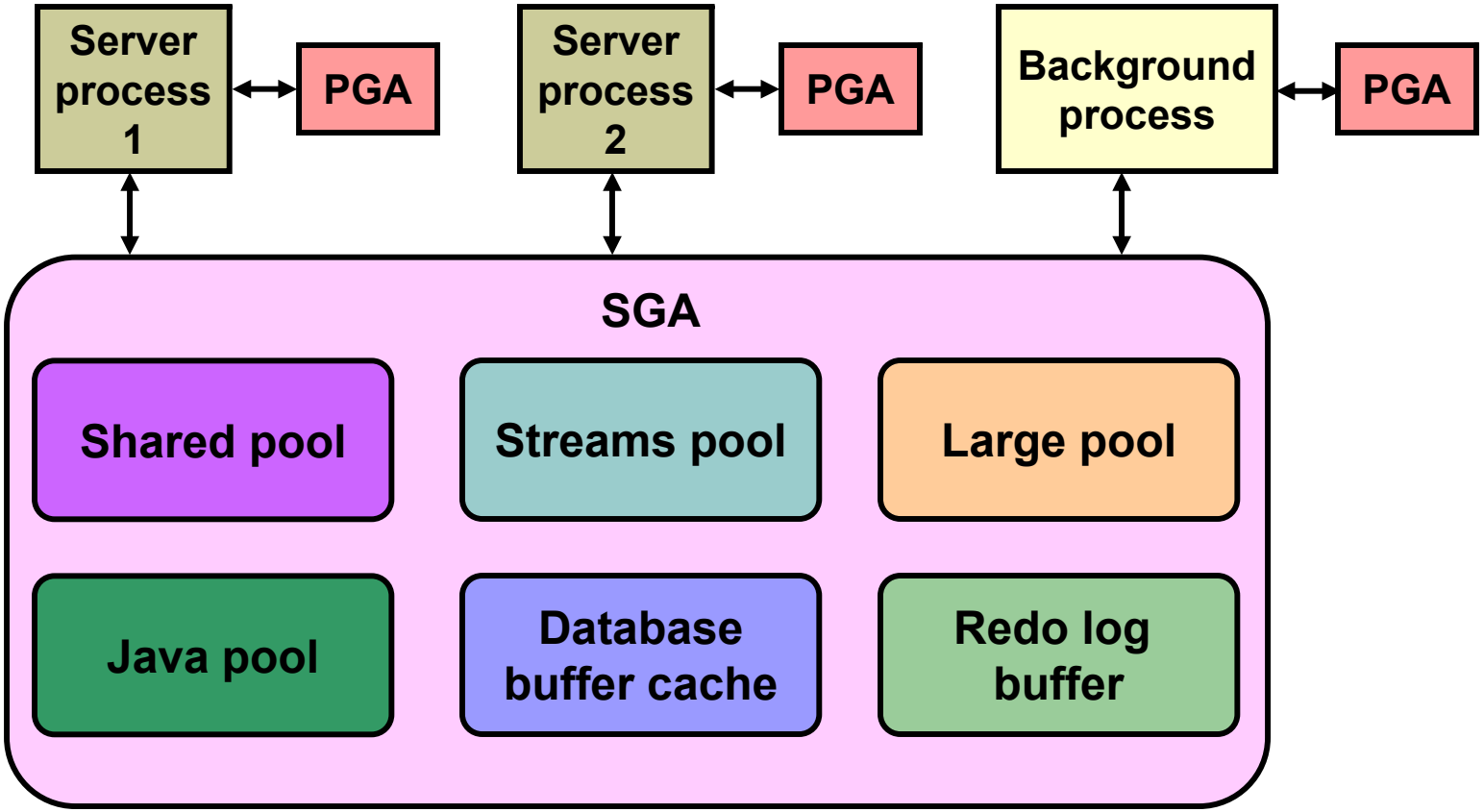
Database Structures

DB structures
- Memory
- Process
- Storage



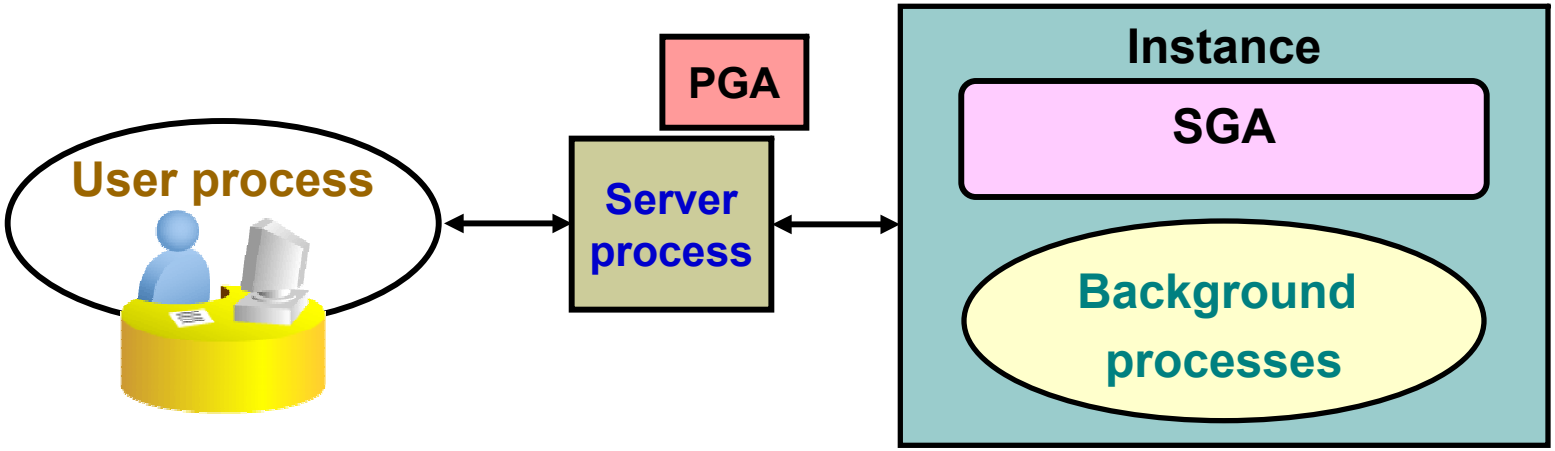
Oracle Memory Structures

DB structures
> Memory
Process
Storage



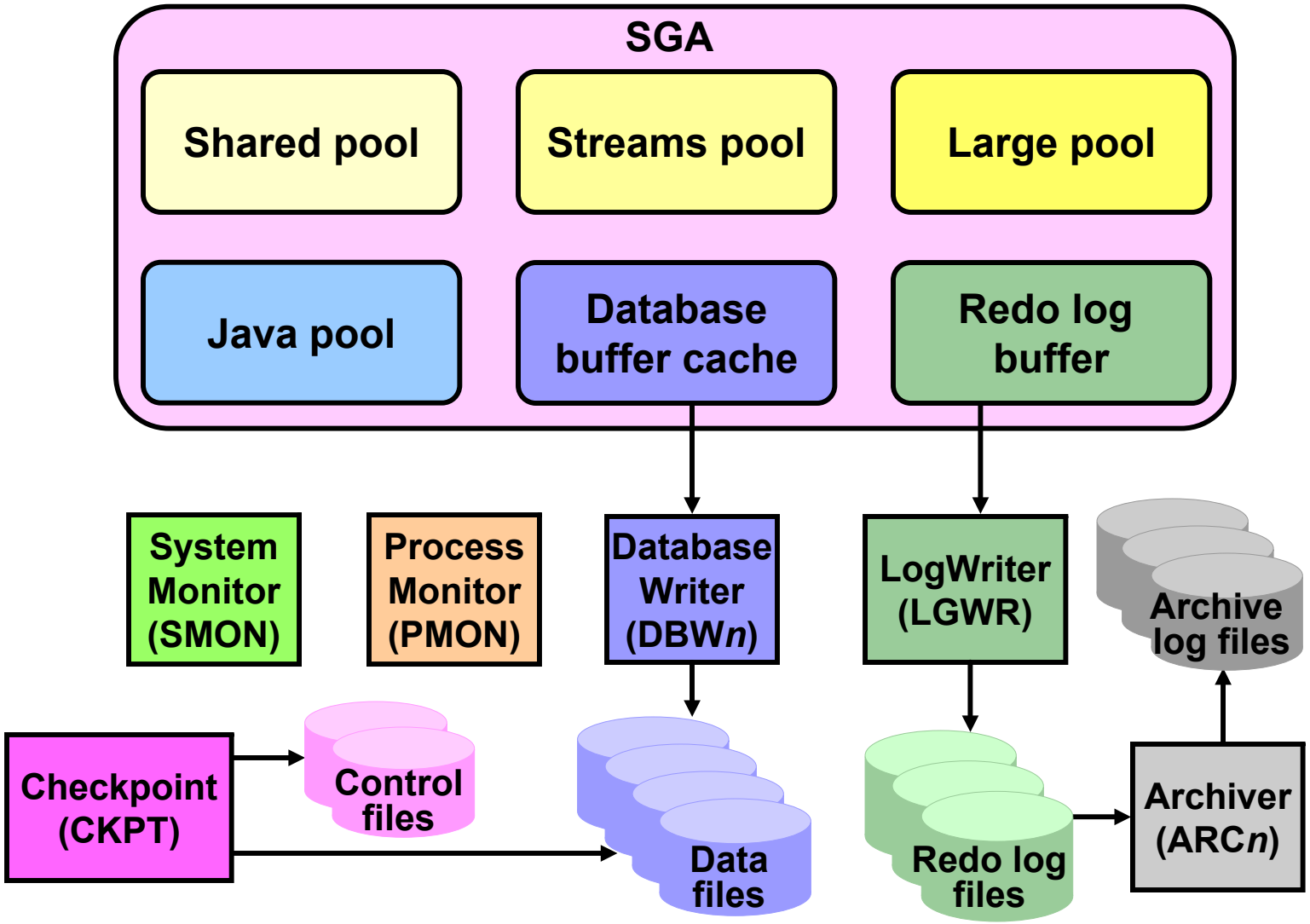
Process Structures

DB structures
Memory
> Process
Storage

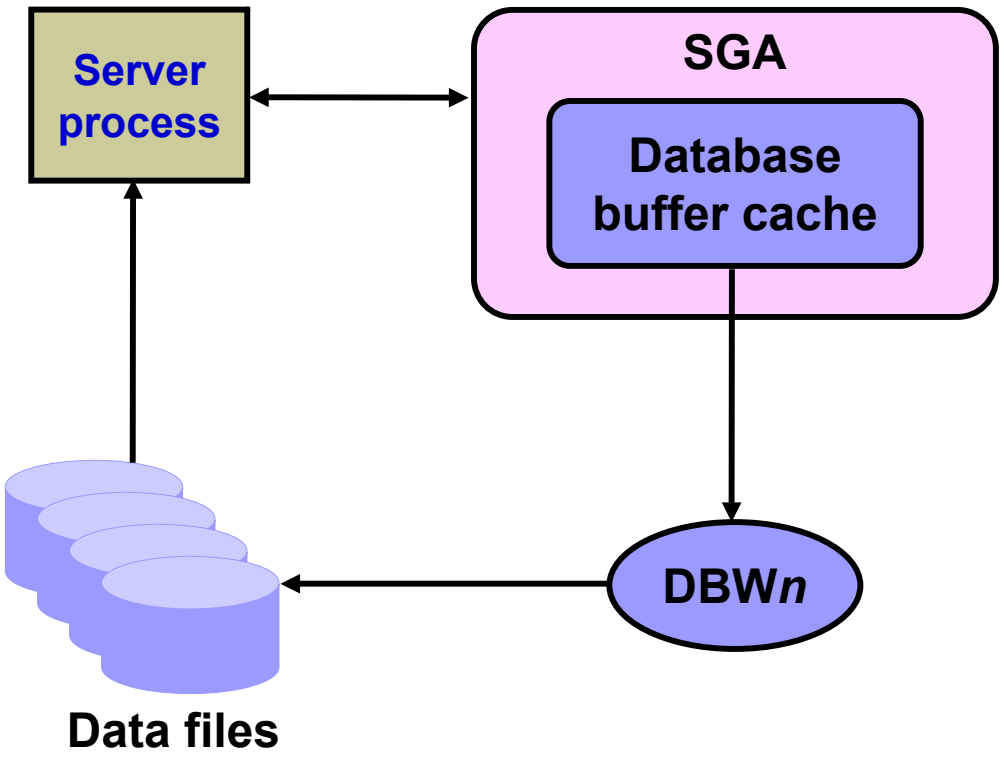


- **User process:** Is started at the time a database user requests a connection to the Oracle server
- **Server process:** Connects to the Oracle instance and is started when a user establishes a session
- **Background processes:** Are started when an Oracle instance is started

Oracle Instance Management



Server Process and Database Buffer Cache

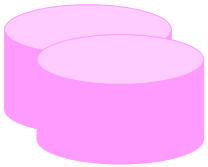


Buffers:

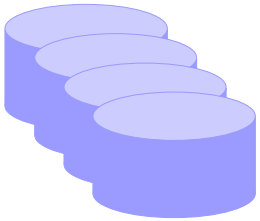
- Pinned
- Clean
- Free or unused
- Dirty

Physical Database Structure

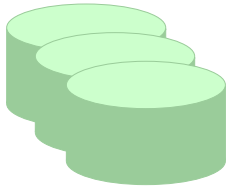
DB structures
- Memory
- Process
- > Storage



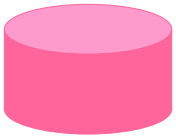
Control files



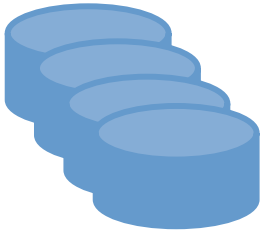
Data files



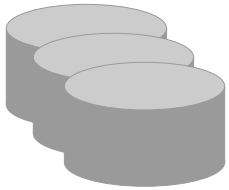
Online redo log files



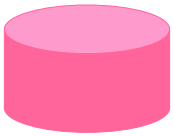
Parameter file



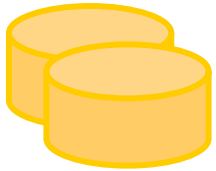
Backup files



Archive log files



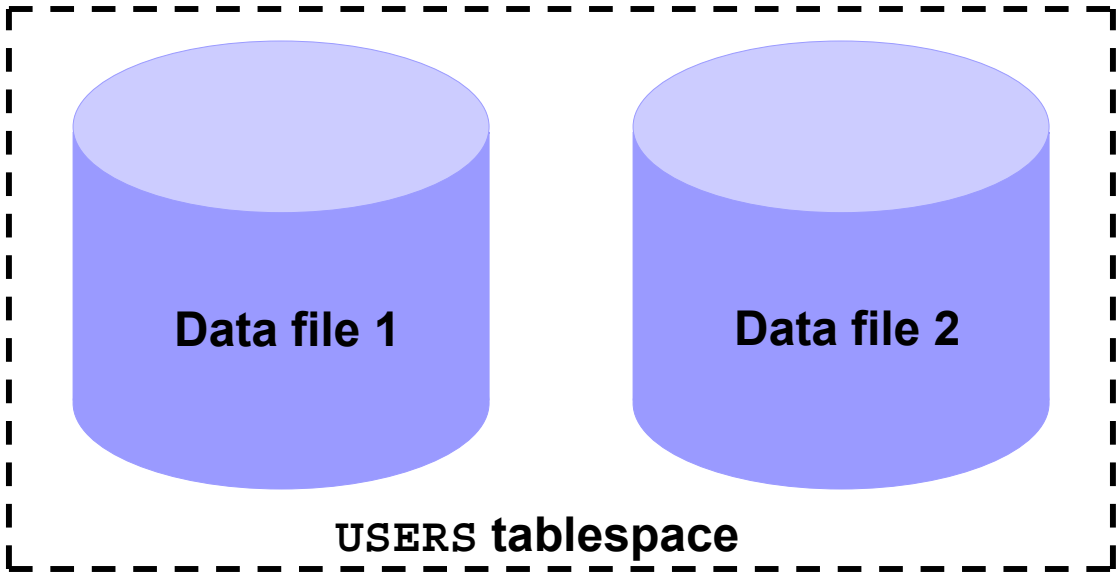
Password file



Alert and trace log files

Tablespaces and Data Files

- Tablespaces consist of one or more data files.
- Data files belong to only one tablespace.

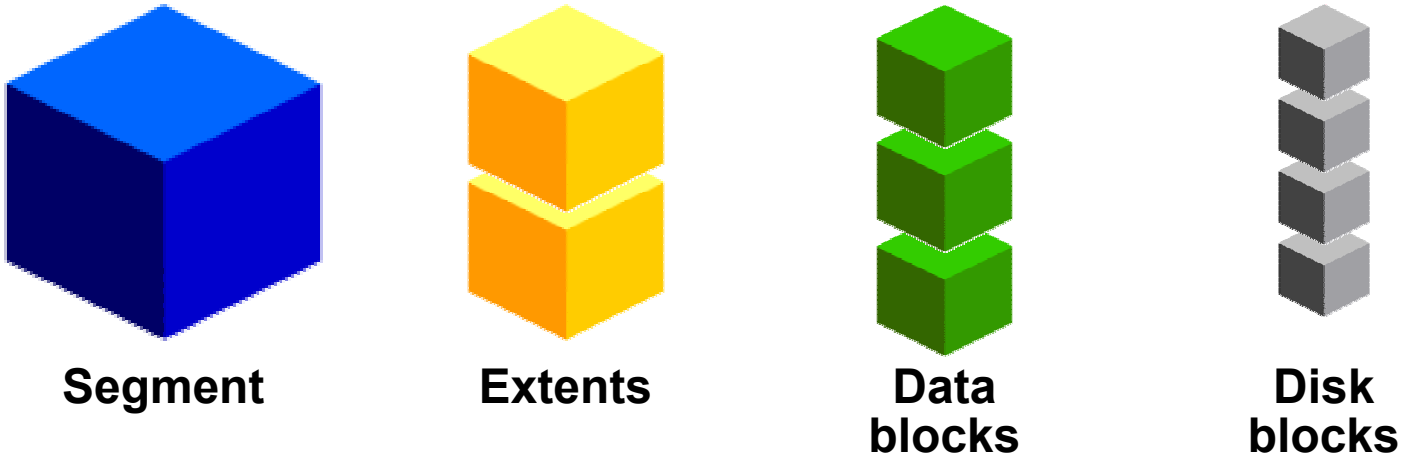


SYSTEM and SYSAUX Tablespaces

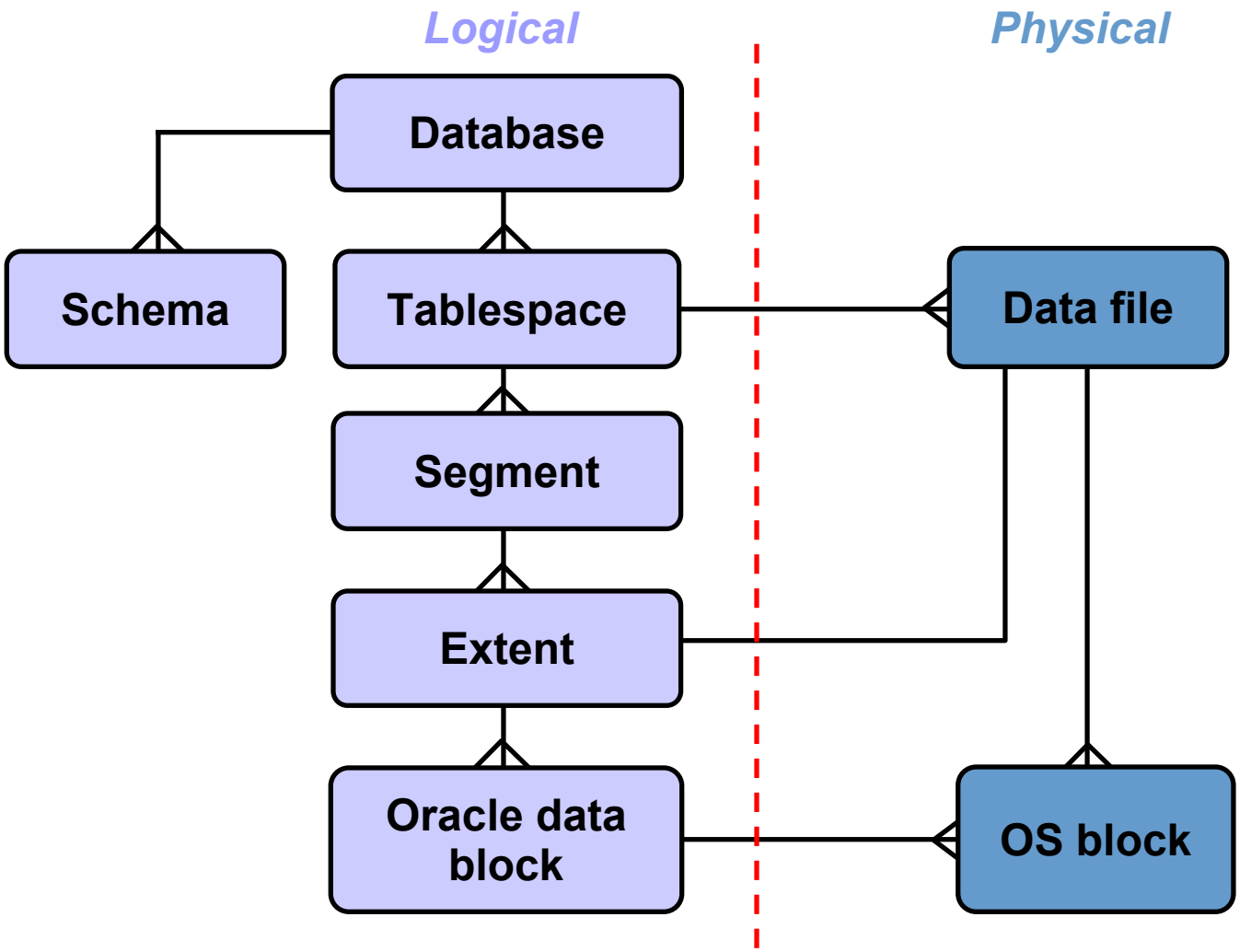
- The SYSTEM and SYSAUX tablespaces are mandatory tablespaces.
- They are created at the time of database creation.
- They must be online.
- The SYSTEM tablespace is used for core functionality (for example, data dictionary tables).
- The auxiliary SYSAUX tablespace is used for additional database components (such as the Enterprise Manager Repository).

Segments, Extents, and Blocks

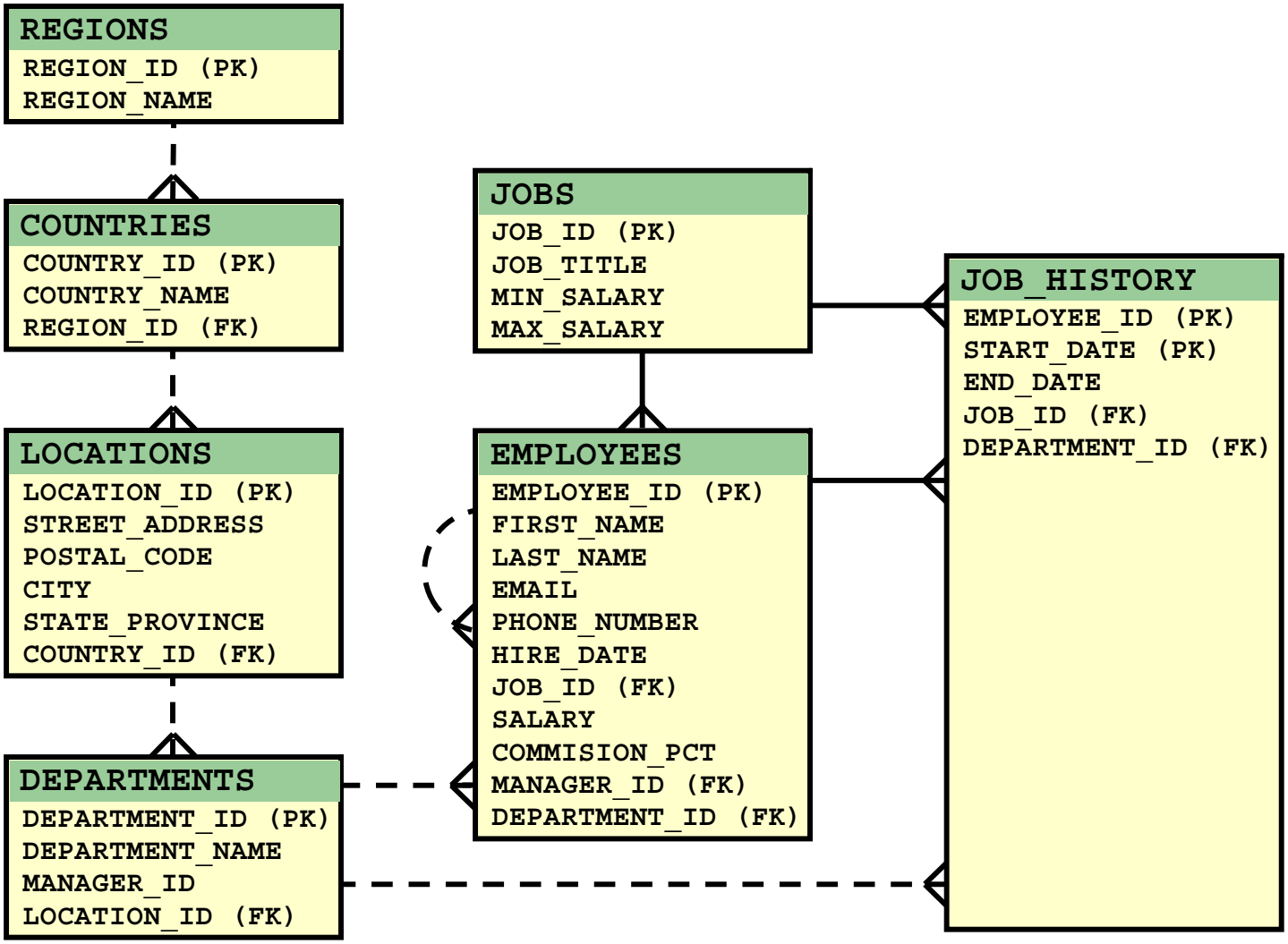
- Segments exist within a tablespace.
- Segments are made up of a collection of extents.
- Extents are a collection of data blocks.
- Data blocks are mapped to disk blocks.



Logical and Physical Database Structures



Course Examples: The HR Schema



Database Architecture: Summary of Structural Components

- **Memory structures:**
  - **System Global Area (SGA): Database buffer cache, redo buffer, and various pools**
  - **Program Global Area (PGA)**
- **Process structures:**
  - **User process and Server process**
  - **Background processes: SMON, PMON, DBW*n*, CKPT, LGWR, ARC*n*, and so on**
- **Storage structures:**
  - **Logical: Database, schema, tablespace, segment, extent, and Oracle block**
  - **Physical: Files for data, parameters, redo, and OS block**

Summary

In this lesson, you should have learned how to:

- **Describe the course objectives**
- **Explain the Oracle Database 10*g* architecture**