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Oracle provides a robust exception handling mechanism to manage errors and unexpected situations during program execution.

This mechanism consists of the following key elements:

1. Exceptions

- Exceptions are events that signal abnormal conditions during program execution.
- They can be raised explicitly by the program using the RAISE statement or implicitly by the Oracle server itself due to various conditions, such as invalid data, insufficient privileges, or network errors.

2. Exception Types

There are two main types of exceptions in Oracle:

- **Predefined Exceptions:** These are built-in exceptions provided by Oracle for common errors. Examples include NO_DATA_FOUND and INVALID_NUMBER.
- **User-Defined Exceptions:** These are custom exceptions defined by the programmer to

handle specific errors in their application.

3. Exception Blocks

- Exception blocks are code sections following the main program code that handle specific exceptions.
- They can be defined using the following keywords:
 - DECLARE: Declares local variables and exception handlers.
 - BEGIN: Contains the main program code.
 - EXCEPTION: Defines exception handlers for expected exceptions.
 - WHEN: Specifies the exception type and the corresponding code to execute when the exception occurs.
 - END: Ends the exception block.

4. Exception Handling Flow

1. The program executes the main code section.
2. If an exception occurs, the program searches for a matching exception handler in the exception block.
3. If a matching handler is found, the code in the handler block is executed, and the program continues execution after the exception block.
4. If no matching handler is found, the exception propagates to the calling environment, potentially terminating the program.

5. Additional Features

- Re-Raising Exceptions: You can re-raise an exception using the RAISE statement within

an exception handler to propagate it to a higher level.

- **Logging and Rollback:** Exception handlers can be used to log the error details and perform rollback operations to undo any partially completed transactions in case of an error.
- **Custom Message and Code:** You can define custom messages and error codes for user-defined exceptions to provide more context and information about the error.

Benefits of using Oracle Exception Handling

- **Improved program stability:** Catches and handles errors gracefully, preventing unexpected program termination.
- **Enhanced code readability and maintainability:** Clearly separates error handling logic from the main program code.
- **Reduced debugging efforts:** Easier identification and resolution of errors.
- **Increased application robustness and reliability:** Provides a safety net against unexpected situations.

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