

Oracle PL/SQL – Program Structure

PL/SQL Program Structure

- The basic unit of PL/SQL program is the **block**.
- PL/SQL programs are divided and written in logical blocks of code.
- Each block consists of three sub parts
 - Declarations
 - Executable Commands
 - Exception Handling

PL/SQL Program Sections

Declaration

Starts with the keyword
`DECLARE`

Optional

Defines all variables, cursors, subprograms, and other elements to be used in the program.

Executable Commands

Enclosed between the keywords
`BEGIN` and
`END`

Mandatory

Consists of the executable PL/SQL statements of the program. Should have at least one executable line of code, which may be just a `NULL` command to indicate that nothing should be executed.

Exception Handling

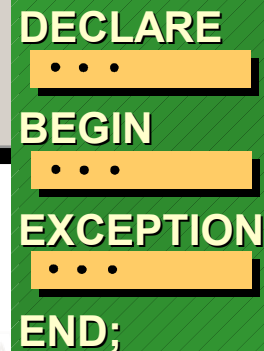
Starts with the keyword
`EXCEPTION.`

Optional

Contains exceptions that handle errors in the program.

PL/SQL Block Structure

- **DECLARE – Optional**
 - Variables, cursors, user-defined exceptions
- **BEGIN – Mandatory**
 - SQL statements
 - PL/SQL statements
- **EXCEPTION – Optional**
 - Actions to perform when errors occur
- **END; – Mandatory**



The diagram illustrates the structure of a PL/SQL block. It consists of four sections stacked vertically, each with a green background and a yellow bar containing three dots. The sections are labeled: DECLARE, BEGIN, EXCEPTION, and END;. A thick black vertical bar is positioned to the right of the DECLARE, BEGIN, and EXCEPTION sections, extending from the top of the DECLARE section down to the bottom of the EXCEPTION section.

```
DECLARE  
...  
BEGIN  
...  
EXCEPTION  
...  
END;
```

- Comments are explanatory statements which are written in the code to help others understand the code better.
- All characters available inside the comment are ignored by PL/SQL compiler.
- PL/SQL supports two types of comments
 - single-line comment (starts with --)
 - multi line comment (enclosed within /* and */)

Sample PL/SQL program

```
DECLARE
```

```
    -- variable declaration
```

```
    message varchar2(20):= 'Hello, World!';
```

```
BEGIN
```

```
    /*
```

```
        PL/SQL executable statement(s)
```

```
    */
```

```
    dbms_output.put_line(message); -- print message in the console
```

```
END;
```

```
/
```

Output :

Hello World

PL/SQL procedure successfully completed.

Thank You