***PL/1 MAINFRAME***

**PROCEDURES IN PL/1:**

* Procedures will have a block of statements delimited by a procedure statement and a corresponding end statement.
* **Syntax:**

**Label: PROCEDURE;**

**….**

**….**

**END LABEL;**

* **Types of procedures:**
  + **Main Procedure**
    - Label: PROC OPTIONS(MAIN);
  + **Function Procedure**
    - Label: PROC(parameters) RETURNS(attributes);
  + **Sub-routine Procedure**
    - Label: PROC(paramters);
* The procedure statement identifies the procedure as main, function or sub-routine based on the parameter expected by the procedure.
* Procedure program:

**DEMO01:PROCEDURE OPTIONS(MAIN); /\*Main Procedure\*/**

**/\***

**Declaration of external function procedure**

**FACT: It is the function name**

**EXTERNAL: It means as function body is not coded within DEMO01, so it’s declared as external function procedure**

**ENTRY(FIXED): It means passing argument is of Fixed Decimal**

**RETURNS(FIXED): It means returning value is of Fixed Decimal**

**\*/**

DCL FACT EXTERNAL ENTRY(FIXED) RETURNS(FIXED);

DCL NUM FIXED DECIMAL;

DCL FACTORIAL FIXED DECIMAL;

PUT SKIP LIST(‘FACTORIAL PROCEDURE’);

GET(NUM);

**/\*Invoking Function Procedure\*/**

FACTORIAL=FACT(NUM);

PUT SKIP LIST(‘FACOTRIAL:’);

DCL A FIXED DECIMAL(3,0) INIT(10),

B FIXED DECIMAL(3,0) INIT(20);

PUT SKIP LIST(‘SUBROUTINE PROCEDURE:’)

**/\*Invoking Subroutine Procedure\*/**

CALL SWAP(A,B);

PUT SKIP LIST(‘AFTER SWAP’);

PUT SKIP LIST(‘A:’||A);

PUT SKIP LIST(‘B:’||B);

**/\*Subroutine procedure body\*/**

**SWAP**:**PROCEDURE(A1,B1) OPTIONS(BYADDR);**

DCL A1 FIXED DECIMAL(3,0);

DCL B1 FIXED DECIMAL(3,0);

DCL TEMP FIXED DECIMAL(3,0);

TEMP=A1;

A1=B1;

B1=TEMP;

**END SWAP;**

**END DEMO01;**

**Note: FACT function procedure is coded in separate member of the PDS**

**FACT**: **PROC(NUM) RETURNS(FIXED);**

DCL (NUM,I,RES) FIXED; /\*Declaring multiple variables\*/

RES=1;

DO I=NUM TO 1 BY -1;

RES=RES\*I;

END;

RETURNS(RES);

**END FACT;**

* A
* A