

BCI433 - IBM i Business Computing

**Week 4: RPGLE Programming (cont'd)
& CL Startup Program**

Agenda

- ▶ RPGLE Case Structure+
- ▶ Using RDi: Creating Filters
- ▶ Debugging RPGLE Program
- ▶ Setup ACS with STARTUP program
- ▶ Monitor message
- ▶ User Profile
- ▶ Lab 3B
- ▶ Lab 4-1 (Part A, B, C, & D only)

Lesson Objectives

Upon completion of this lecture and lab 4 you'll be able to:

- ▶ Use Case structure to solve an application problem
- ▶ Use the Debug option to check a program's logic
- ▶ Create Filters
- ▶ Code a Client Access sign on program and understand User Profiles
- ▶ Create and use a startup program
- ▶ Monitor for Error Messages

RPG Syntax

- ▶ Select Statements – CASE Structure
 - used to control sections of the program

```
SELECT;
  WHEN condition;
    statements;
  WHEN condition;
    statements;
OTHER;
  statements;
ENDSL;
```

- ▶ How about using the "if...; elseif...; ...; else; endif;" statement?

In class exercise

- ▶ Converting a number grade to a letter grade

```
SELECT;
    WHEN NUMGRADE >= 90;
        LETGRADE = 'A+';
    when (numgrade >= 80);
        letgrade = 'A';
    // Do not test both the upper and lower limits of a range!
    when (numgrade >= 75 AND numgrade < 80);
    ...
other;
    letgrade = 'F';
ENDSL;
```

2 Built-in functions in RPG

- ▶ **%DIFF (op1 : op2 : unit)**
 - It produces the difference (duration) between two date or time values.
 - The last parameter determines the return value's unit, e.g. *YEARS, *DAYS, ...
- ▶ **%Date(value)**
 - used to convert a numeric or other value to Date
 - %date() returns today's Date
- ▶ **%DEC (Variable)**
- ▶ **Example:**

```
%Diff(d'2020-08-14': %Date() : *DAYS); // days to the end of the term
```

Debugging an RPGLE Program

- ▶ Enable debugging to the program:
RDi: select "Compile (Prompt)" > set "Debugging views" to *ALL
- ▶ Set a program to DEBUG mode:
==> STRDBG INCTAXRPG
- ▶ Press F6 to set breakpoint. Press F12 to exit.
- ▶ Start the program
==> CALL INCTAXRPGA
- ▶ Press F10 to step to next line or press F12 to resume/start
- ▶ To find variable value:
F11, or run the command EVAL VarName command at the prompt
- ▶ Exit from DEBUG mode
==> ENDDBG

STARTUP – A CL Program

► CL Programming

- A CL source program is a set of CL source statements, which
 - ▶ can be compiled into Integrated Language Environment® (ILE) module → CLLE
 - ▶ used to run and manage business applications as batch and interactive jobs that utilize resources efficiently, like Unix Shell programming.
- The first line command: PGM
- The last line command: ENDPGM

► STARTUP.clle – a batch program

- MonMsg: used to handle "run-time Errors/Exceptions"

MONitor MeSSaGe

- ▶ Monitors for *ESCAPE (black screen of death) and *STATUS messages sent by CL commands to the program message queue.
- ▶ Used to stop the black screen of death or handle errors in CL programs.
- ▶ **MONMSG** command example
 - CHGVAR VAR(&A) VALUE(&A / &B)
 - MONMSG MSGID(MCH1211) EXEC(CHGVAR VAR(&A) VALUE(1))
- ▶ The MonMsg command **must be the next line** of the command that is monitored/
- ▶ Message ID:
 - similar to specific Exception in Java or ...

User Profiles

- ▶ The user profile describes the user to the system.
- ▶ Some info stored in the user profile:
 - Password
 - Initial Program
 - Initial Menu
 - The Current Library
 - User Class
 - Special Authorities
 - Maximum Allowed Storage
 -
- ▶ CHGPRF vs CHGUSRPRF

User Class and Special Authorities

► User class (USRCLS)

- is used to control what menu options are shown to the user on IBM® i menus.
- This helps control user access to some system functions.

► List of user class

- *SECOFR
 - ▶ *ALLOBJ, *SAVSYS, *JOBCTL, *SERVICE, *SPLCTL, *SECADM, *AUDIT, *IOSYSCFG
- *SECADM
 - ▶ *SECADM
- *SYSOPR
 - ▶ *SAVSYS, *JOBCTL
- *PGMR
- *USER

User Class and Special Authorities

- ▶ **Special Authorities (SPCAUT)**
 - specifies the special authorities given to a user.
- ▶ **List of Special Authorities**
 - *ALLOBJ
 - *SECADM
 - *SAVSYS
 - *IOSYSCFG
 - *JOBCTL
 - *AUDIT
 - *SERVICE
 - *SPLCTL

Demo: Lab 3B

Lab 4-1

Homework

- ▶ Review lecture notes.
- ▶ Complete Lab 3B,
- ▶ Complete Lab 4-Part 1(Part A, B, C & D only)

The End