

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 4A

Lesson Objectives

Upon completion of this lecture and lab 2 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

► Example:

```
%Diff(%Date() : BirthDate : *YEARS); // calculate age in years
```

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 F10 to exit.
- ▶ Start the program
==> CALL INCTAXRPGA
- ▶ Press F10 to step to next line or press F10 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"
- QGPL - General Purpose Library
 - If a user does have current library, when the user creates a new object, QGPL will be used to store the object.

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 ...

Keyword Notation vs Positional Notation

► Keyword Notation

- To show keyword in green screen: F4 then F11

```
MONMSG MSGID(CPF0000) EXEC(CHGVAR &IN33 '1')
```

► Positional Notation

- The order of parameter values cannot be altered.
- *N notation: instead of giving the predefined/default value we use ***N** or ***NONE**.

```
MONMSG CPF0000 *N (CHGVAR &IN33 '1')
```

Keyword Notation vs Positional Notation

► Mixed Notation

- Positional value cannot follow keyword parameter.

```
MONMSG CPF0000 EXEC (CHGVAR &IN33 '1')
```

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, Lab 4A



Homework

- ▶ Review lecture notes.
- ▶ Complete Lab 3B,
- ▶ Complete Lab 4A



The End

