

BCI433 - IBM i Business Computing

Week 9: Embed SQL Statements in RPGLE Program

Agenda

- ▶ Embedded SQL in an RPGLE Program
- ▶ Lab 8
 - Subfile concepts
- ▶ Lab 9A

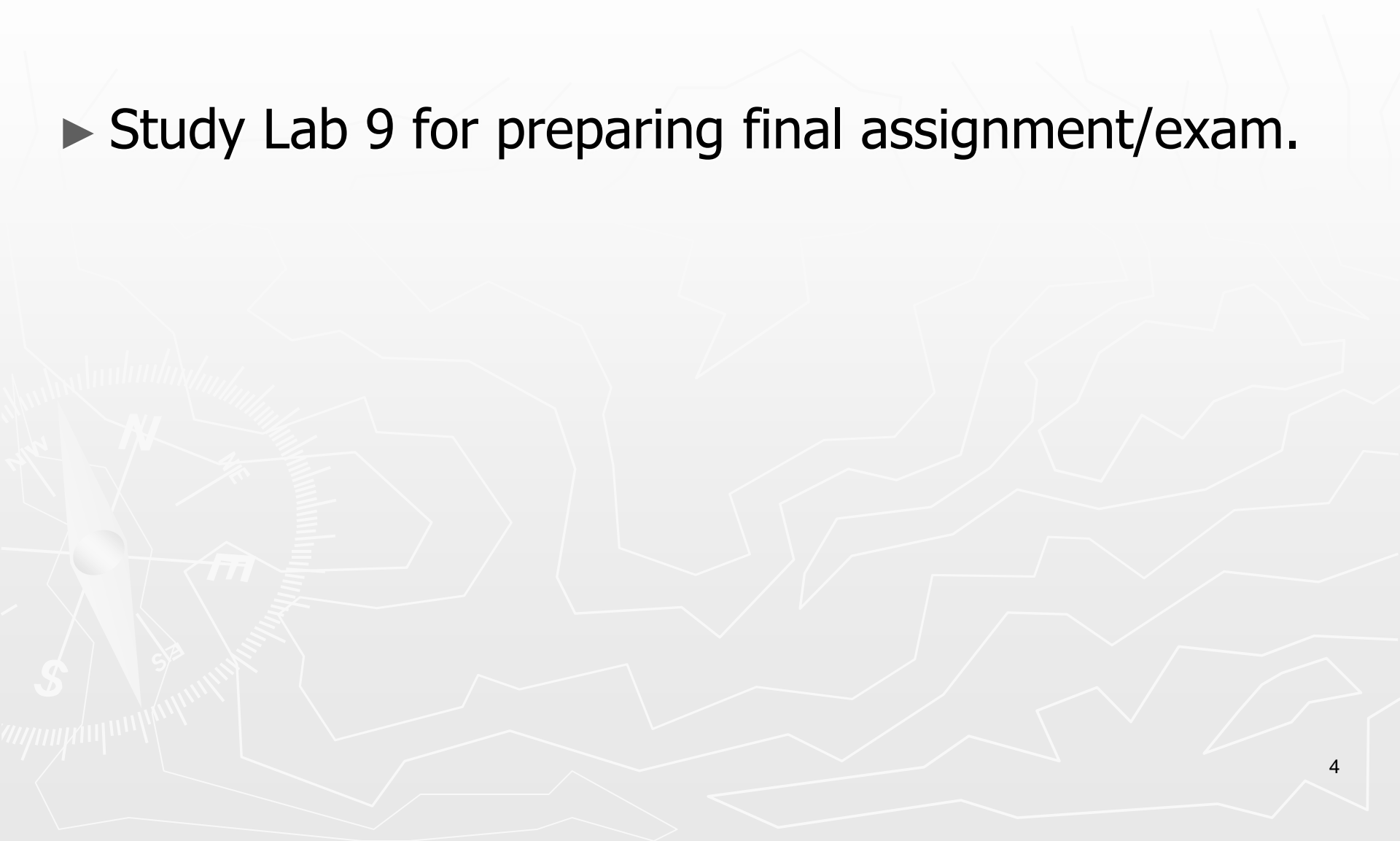
Lesson Objectives

Upon completion of this lecture and lab 2 you'll be able to:

- ▶ Apply both RPGLE statements and embedded SQL to access database files in RPGLE application development
- ▶ Understand subfile concepts

Starting Lab 9A

- ▶ Study Lab 9 for preparing final assignment/exam.



Starting Lab 9A

Understanding Lab 9A, and preparing for final ...

► What does Lab 9A do?

- Create a report (printer file) with the data obtained by "joining" 2 database tables (physical files as "input"s).

► Using 2 different ways to access the 2 tables:

■ Input 1: CUSTOMER20

- accessed by **RPGLE read statement**
- What do you need to define/declare for this table/file? **DCL-F**

■ Input 2: CONTACTW20

- accessed through **embedded SQL statements**
- What do you need to define/declare for this table/file? **DCL-DS**

Starting Lab 9A

- ▶ The RPGLE state used to run/embed SQL statement:

EXEC SQL

// an SQL statement here

- ▶ What to do if a db table field allows **null** value (when using embed SQL)?

- Define a standalone indicator variable (type?), e.g. **INDLastCDate**
- Add in after **the host variable** and a space, e.g.

SELECT **PHNLDC** + **PHNCIT** **DAYS**, PHNLDC, ...

INTO **:NEXTCDATE** **:INDNEXTCDATE**, :PHNLDC ...

- Process null values after the embed sql statement

IF IndLastCDate = -1;

... ..

Starting Lab 9A

- ▶ Processing after running embed SQL statements in RPG:
 - to indicate the rows/records with problem
 - to prevent program crash
 - includes,

- ▶ the process for null value field
- ▶ the process after Select ... INTO..., e.g.

```
SELECT;  
  WHEN SQLSTATE = '00000';  
  ... ..
```

- ▶ the process after Select ... INTO ... with group functions, e.g.
count(*), max(), min()

```
IF (SQLCODE <> 0) OR (SQLWNO = 'W');  
  CONTACTT = -99999;  
ENDIF;
```

Starting Lab 9A

► Host variables

- Data filed defined for RPGLE Read statements
 - e.g. :CSTNUM
- Fields of data structure for Embed SQL statements
 - e.g. :CSTPHN, :PHNCOM, :CSTSLN
- Named fields,
:CONTACTT
- Standalone files, e.g. indicator variables –
 - e.g. :INDLastCDate

Starting Lab 9A

- ▶ How to retrieve current user, system time and server name using SQL statement in IBM i?
 - See the last piece of code showed in class



About Lab 8

- ▶ A research assignment
 - Except the lecture, no more helps
- ▶ A group assignment
 - must be done in a team with 2 or 3 members
 - not working alone or 4+ members
- ▶ Form teams
 - after team setup: email me the list of team members with IBM i user account

About Lab 8

► Submission:

- 1 team member submits
 - with the list of team members
 - must follow the instruction on BB
- All member get the same marks



Running the sample program

- ▶ CHGCURLIB BCI433LIB
- ▶ CALL BLUEJAYPGM
- ▶ CHGCURLIB DJ433E35

A - ZEUS.SENECACOLLEGE.CA

File Edit View Communication Actions Window Help

A - ZEUS.SENECACOLLEGE.CA B - ZEUS.SENECACOLLEGE.CA C - ZEUS.SENECACOLLEGE.CA

Toronto Blue Jays 3/21/20

View:

Pitchers: 20 Catchers: 2 Infield: 6 Outfield: 6 Other: 1

Name	Position	Hits/ Throws	BirthDate	Height	Weight
Anthony Alford	Outfield	R/R	1994-07-20	6-1	225
Chase Anderson	Pitcher	R/R	1987-11-30	6-1	200
Anthony Bass	Pitcher	R/R	1987-01-11	6-2	200
Bo Bichette	Infield	R/R	1998-05-03	6-0	185
Cavan Biggio	Infield	L/R	1995-11-04	6-2	200
Ryan Borucki	Pitcher	L/L	1994-03-31	6-4	215
Jonathan Davis	Outfield	R/R	1992-12-05	5-8	190
Yennsy Diaz	Pitcher	R/R	1996-11-15	6-1	202
Brandon Drury	Infield	R/R	1992-08-21	6-2	215
Wilmer Font	Pitcher	R/R	1990-05-24	6-4	250
Sam Gaviglio	Pitcher	R/R	1990-05-22	6-2	205
Ken Giles	Pitcher	R/R	1990-09-20	6-3	210
Randal Grichuk	Outfield	R/R	1991-08-13	6-2	213
Vladimir Guerrero Jr	Infield	R/R	1999-03-16	6-2	250

More...

MA A 01/001

ZEUS.SENECACOLLEGE.CA resolved to 142.204.8.88/142.204.8.88 (IPv4)

ZEUS.SENECACOLLEGE.CA:23

Using Subfile

- ▶ In lab 8, you need to create RPGLE program uses a **subfile** to present data (**on screen**) from a data file.
 - Similar to Lab 5, we present data to a printer file and getting data from physical file.
 - ▶ Relative Record
 - ▶ (data) fields dragged from (physical) files
- ▶ **INPUT:**

Using Subfile

- ▶ Subfiles can be specified in the DDS for a display-device file to allow you to handle multiple records of the same type on the display.
- ▶ The DDS for a subfile consists of two record formats:
 - a **subfile-record format** - contains the field information that is transferred to or from the display file under control of the subfile control-record format.
 - a subfile **control-record format** - causes the physical read, write, or control operations of a subfile to take place.

Creating Subfile

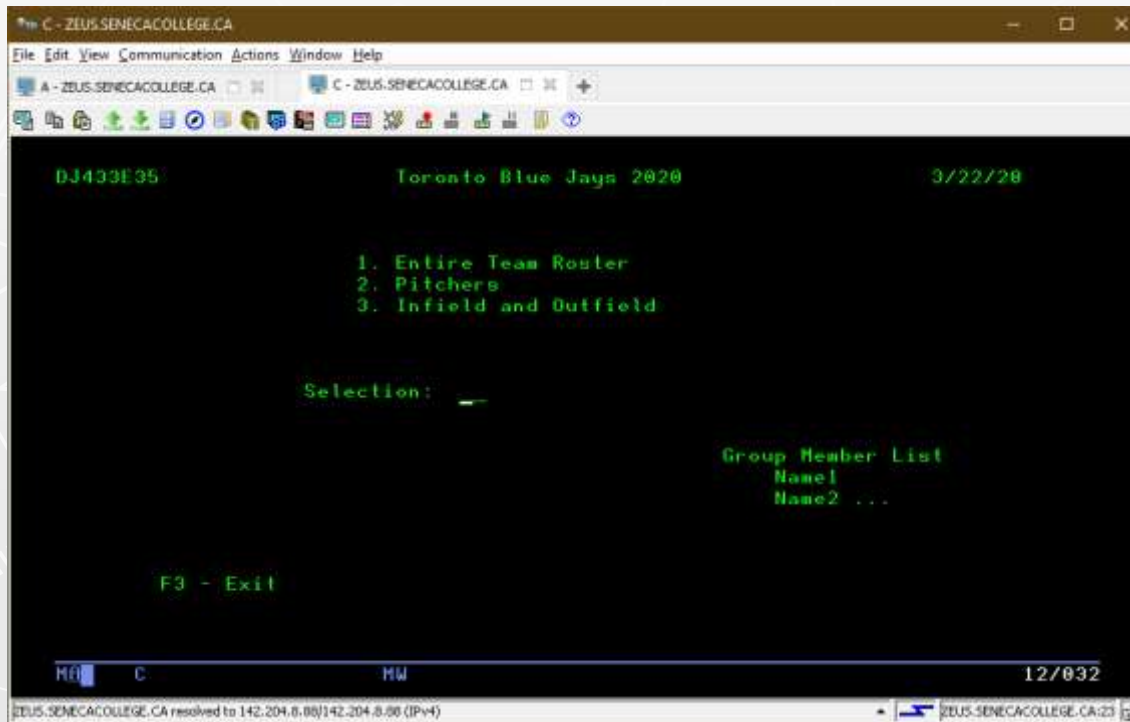
Demo in RDi:

- ▶ Open a display file with screen designer, then
- ▶ Drag a **Subfile Record** to the working area - 2 record formats will be automatically generated:
 - **CTL1** – the subfile **control-record format**
 - ▶ drag constants, named fields to this record to create the fixed parts on the screen: "Toronto Blue Jays", "Pitchers", PITCHERS named field, ..., column headings ("Name", "Position", ...)
 - **SFL1** – the **subfile-record format**
 - ▶ drag data fields to this record from BASEBALL20/AMERICANLG

Creating Subfile

Demo in RDi:

- **Notes:** after creating the subfile, you need to drag a "Standard Record" for the first screen of the program with
 - Menu & selection field
 - Your group member list



What's next?

- ▶ Form groups
- ▶ Research for this lab
 - IBM Knowledge Center
 - Online search
 - Study Lab 9
- ▶ Note:
 - No material concerning subfiles will be on the final exam or final assignment

Lab 9A Demo



Homework

- ▶ Review lecture notes.
- ▶ Complete Lab 9A
- ▶ Lab 7 due



The End

