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IT 106 003

Assignment 5 Pseudocode

Defining Diagram

|  |  |  |
| --- | --- | --- |
| Input | Processing | Output |
| CRN\_input  0(program termination)  number\_of\_enrollments\_input | Prompt user for CRN\_input  Read CRN\_input  Validate CRN\_input for numbers only  Validate CRN\_input from CRN array  Prompt user for number\_of\_enrollments  Read number\_of\_enrollments  Validate number\_of\_enrollments for numbers only  Validate number\_of\_enrollments not exceeding 30  Validate number\_of\_seats not less then zero  Calculate number\_of\_enrollments\_remaining  Calculate number\_of\_seats\_remaining  Display CRN, titles, number\_of\_enrollments\_remaining, number\_of\_seats\_remaining | CRN  titles number\_of\_enrollments\_remaining, number\_of\_seats\_remaining  error\_nonexisting\_CRN  error\_invlid\_CRN\_letter  error\_enrollment\_full  error\_invalid\_enrollment\_number  error\_inalid\_enrollment\_letter  error\_excessive\_enrollment\_input |

Solution Diagram

CALCULATE\_STUDENT\_ACCOUNT

1. Set titles\_array (1) = ‘Introduction to IT Problem Solving Using Computer Programming’, titles\_array (2) = ‘Object-Oriented Techniques for IT Problem Solving’, titles\_array (3) = ‘Applied IT Programming’, titles\_array (4) = ‘Database Fundamentals’, titles\_array (5) = ‘Database Programming’
2. Set CRN (1) = 12451, CRN (2) = 15349, CRN (3) = 18467, CRN (4) = 16890, CRN (5) = 13334
3. Set number\_of\_enrollments\_input to zero
4. Set number\_of\_enrollments (1) = 30, number\_of\_enrollments (2) = 30, number\_of\_enrollments (3) = 30, number\_of\_enrollments (4) = 30, number\_of\_enrollments (5) = 30
5. Set number\_of\_seats\_remaining (index) to five
6. Prompt user for CRN\_input
7. Read CRN\_input
8. DOWHILE CRN\_INPUT NOT 0

IF CRN (index) NOT CRN\_input THEN

Display error\_nonexisting\_CRN

Re-prompt user for CRN\_input

Read CRN\_input

ELSE IF CN (index) NOT integer THEN

Display error\_invalid\_CRN\_letter

Re-prompt user for CRN\_input

Read CRN\_input

ELSE IF CRN (1) = CRN\_input THEN

IF number\_of\_enrollments (1) <= 0 THEN

Display error\_enrollment\_full

ELSE

Prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollment\_input

DOWHILE number\_of\_enrollments\_input > 30 OR number\_of\_enrollments < 0

Display error\_invalid\_enrollment\_number

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments\_input

ENDDO

IF number\_of\_enrollments\_input NOT integer THEN

Display error\_invalid\_enrollment\_letter

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments \_input

ELSE IF (number\_of\_enrollments (1) – number\_of\_enrollments \_input) <= -1 THEN

Display error\_excessive\_enrollment\_input

Re-prompt user for number\_of\_enrollments \_input

Read number\_of\_enrollments \_input

ELSE

number\_of\_enrollments (1) = number\_of\_enrollments (1) – number\_of\_enrollments \_input

number\_of\_seats\_remaining (1) = number\_of\_seats\_remaining (1) + number\_of\_enrollments

ENDIF

ENDIF

ELSE IF CRN (2) = CRN\_input THEN

IF number\_of\_enrollments (2) <= 0 THEN

Display error\_enrollment\_full

ELSE

Prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollment\_input

DOWHILE number\_of\_enrollments\_input > 30 OR number\_of\_enrollments < 0

Display error\_invalid\_enrollment\_number

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments\_input

ENDDO

IF number\_of\_enrollments\_input NOT integer THEN

Display error\_invalid\_enrollment\_letter

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments \_input

ELSE IF (number\_of\_enrollments (2) – number\_of\_enrollments \_input) <= -1 THEN

Display error\_excessive\_enrollment\_input

Re-prompt user for number\_of\_enrollments \_input

Read number\_of\_enrollments \_input

ELSE

number\_of\_enrollments (2) = number\_of\_enrollments (2) – number\_of\_enrollments \_input

number\_of\_seats\_remaining (2) = number\_of\_seats\_remaining (2) + number\_of\_enrollments

ENDIF

ENDIF

ELSE IF CRN (3) = CRN\_input THEN

IF number\_of\_enrollments (3) <= 0 THEN

Display error\_enrollment\_full

ELSE

Prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollment\_input

DOWHILE number\_of\_enrollments\_input > 30 OR number\_of\_enrollments < 0

Display error\_invalid\_enrollment\_number

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments\_input

ENDDO

IF number\_of\_enrollments\_input NOT integer THEN

Display error\_invalid\_enrollment\_letter

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments \_input

ELSE IF (number\_of\_enrollments (3) – number\_of\_enrollments \_input) <= -1 THEN

Display error\_excessive\_enrollment\_input

Re-prompt user for number\_of\_enrollments \_input

Read number\_of\_enrollments \_input

ELSE

number\_of\_enrollments (3) = number\_of\_enrollments (3) – number\_of\_enrollments \_input

number\_of\_seats\_remaining (3) = number\_of\_seats\_remaining (3) + number\_of\_enrollments

ENDIF

ENDIF

ELSE IF CRN (4) = CRN\_input THEN

IF number\_of\_enrollments (4) <= 0 THEN

Display error\_enrollment\_full

ELSE

Prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollment\_input

DOWHILE number\_of\_enrollments\_input > 30 OR number\_of\_enrollments < 0

Display error\_invalid\_enrollment\_number

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments\_input

ENDDO

IF number\_of\_enrollments\_input NOT integer THEN

Display error\_invalid\_enrollment\_letter

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments \_input

ELSE IF (number\_of\_enrollments (4) – number\_of\_enrollments \_input) <= -1 THEN

Display error\_excessive\_enrollment\_input

Re-prompt user for number\_of\_enrollments \_input

Read number\_of\_enrollments \_input

ELSE

number\_of\_enrollments (4) = number\_of\_enrollments (4) – number\_of\_enrollments \_input

number\_of\_seats\_remaining (4) = number\_of\_seats\_remaining (4) + number\_of\_enrollments

ENDIF

ENDIF

ELSE IF CRN (5) = CRN\_input THEN

IF number\_of\_enrollments (5) <= 0 THEN

Display error\_enrollment\_full

ELSE

Prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollment\_input

DOWHILE number\_of\_enrollments\_input > 30 OR number\_of\_enrollments < 0

Display error\_invalid\_enrollment\_number

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments\_input

ENDDO

IF number\_of\_enrollments\_input NOT integer THEN

Display error\_invalid\_enrollment\_letter

Re-prompt user for number\_of\_enrollments\_input

Read number\_of\_enrollments \_input

ELSE IF (number\_of\_enrollments (5) – number\_of\_enrollments \_input) <= -1 THEN

Display error\_excessive\_enrollment\_input

Re-prompt user for number\_of\_enrollments \_input

Read number\_of\_enrollments \_input

ELSE

number\_of\_enrollments (5) = number\_of\_enrollments (5) – number\_of\_enrollments \_input

number\_of\_seats\_remaining (5) = number\_of\_seats\_remaining (5) + number\_of\_enrollments

ENDIF

ENDIF

Re-prompt for CRN\_input

Read CRN\_input

ENDDO

1. Print titles (index), CRN (index), number\_of\_enrollments (index), number\_of\_seats\_remaining (index)

END

Input Test Data

|  |  |  |
| --- | --- | --- |
|  | First Data Set | Second Data Set |
| CRN\_input | 12451, dsnj, 16890, 13334, 00, 13334, 15349, 0 | 12451, 13335, 18467, 18467, 12451, 13334, 16890, 15349, 15349, 13334, 0 |
| Number\_of\_enrollments\_input | 3, 20, 28, -1, 30, 16 | 4, 30, 5, 15, 21, 21, wow, 20, 9 |

Expected Result

|  |  |  |  |
| --- | --- | --- | --- |
|  | First Data Set | | Second Data Set |
| CRN | 12451, 15349, 18467, 16890, 13334 | | 12451, 15349, 18467, 16890, 13334 |
| titles | Introduction to IT Problem Solving Using Computer Programming", "Object-Oriented Techniques for IT Problem Solving", "Applied IT Programming", "Database Fundamentals", "Database Programming’ | | Introduction to IT Problem Solving Using Computer Programming", "Object-Oriented Techniques for IT Problem Solving", "Applied IT Programming", "Database Fundamentals", "Database Programming’ |
| number\_of\_enrollments\_remaining | {3, 16, 0, 20, 28} | | {19, 20, 30, 21, 30} |
| number\_of\_seats\_remaining | {27, 14, 30, 10, 2) | | (11, 10, 0, 9, 0} |
| error\_nonexisting\_CRN | Error\_message | | Error\_message |
| error\_invlid\_CRN\_letter | Error\_message | |  |
| error\_enrollment\_full |  | | Error\_message |
| error\_invalid\_enrollment\_number | Error\_message | |  |
| error\_inalid\_enrollment\_letter |  | | Error\_message |
| error\_excessive\_enrollment\_input | | Error\_message |  |

Desk Checking Table (Viewable using Draft View on the Microsoft Word)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | title | CRN | CRN\_input | Number\_of\_enrollments\_input | Number\_of\_enrollments | Number\_of\_enrollments\_remaining | error\_nonexisting\_CRN | error\_enrollment\_full | error\_invalid\_enrollment\_number | error\_inalid\_enrollment\_letter | error\_excessive\_enrollment\_input | error\_invlid\_CRN\_letter | number\_of\_seats\_remaining | DOWHILE condition |
| First Data Set |  | | | | | | | | | | | | | |
| 1 | ‘Introduction to IT Problem Solving Using Computer Programming’, ‘Object-Oriented Techniques for IT Problem Solving’, ‘Applied IT Programming’, ‘Database Fundamentals’, ‘Database Programming’ |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  | 12451, 15349, 18467, 16890, 13334 |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  | 0 |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  | {0,0,0,0,0} |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  | 5 |  |  |  |  |  |  |  |  |
| 6 |  |  | 12451, dsnj, 16890, 13334, 00, 13334, 15349, 0 |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  | 12451, dsnj, 16890, 13334, 00, 13334, 15349, 0 |  |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  | Display |  | Display |  | Display | Display |  | True |
| 9 | ‘Introduction to IT Problem Solving Using Computer Programming’, ‘Object-Oriented Techniques for IT Problem Solving’, ‘Applied IT Programming’, ‘Database Fundamentals’, ‘Database Programming’ | 12451, 15349, 18467, 16890, 13334 |  |  |  | {3, 16, 0, 20, 28} |  |  |  |  |  |  | {27, 14, 30, 10, 2) |  |
| Second Data Set |  | | | | | | | | | | | | | |
| 1 | ‘Introduction to IT Problem Solving Using Computer Programming’, ‘Object-Oriented Techniques for IT Problem Solving’, ‘Applied IT Programming’, ‘Database Fundamentals’, ‘Database Programming’ |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  | 12451, 15349, 18467, 16890, 13334 |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  | 0 |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  | {0,0,0,0,0} |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  | 5 |  |  |  |  |  |  |  |  |
| 6 |  |  | 12451, 13335, 18467, 18467, 12451, 13334, 16890, 15349, 15349, 13334, 0 |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  | 12451, 13335, 18467, 18467, 12451, 13334, 16890, 15349, 15349, 13334, 0 |  |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  | Display | Display |  | Display |  |  |  | True |
| 9 | ‘Introduction to IT Problem Solving Using Computer Programming’, ‘Object-Oriented Techniques for IT Problem Solving’, ‘Applied IT Programming’, ‘Database Fundamentals’, ‘Database Programming’ | 12451, 15349, 18467, 16890, 13334 |  |  |  | {19, 20, 30, 21, 30} |  |  |  |  |  |  | (11, 10, 0, 9, 0} |  |
| Screenshot | | | | | | | |
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