

LECTURE 10

PROGRAM DESIGN

FILE READING

Lecture Overview

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- File Reading
- File Reading when Trailer Record exists
- File Reading when EOF marker exists

Reading records from txt files

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Reading records of a file is a continuous process until it reaches the last record.

How does the program know this?

1. When a trailer record or sentinel exists
2. When End-of-File (EOF) marker exists

1. Trailer Record or sentinel exists

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- Special record or value at the end of the valid data to indicate the end of valid data
- It must clearly be distinguishable between the other data to be processed.
- The records of the file will be read until the sentinel value is encountered.
- This will be implemented as a while loop condition.

```
Read record_attributes
DOWHILE (sentinel value condition)
    Statement block
    Read record_attributes
ENDDO
```

2. When EOF Marker exists

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- When there's no trailer record, the EOF marker will be checked.
- The check for EOF is positioned in a DOWHILE condition, using one of the equivalent expressions.

DOWHILE more data

DOWHILE more records

DOWHILE records exists

DOWHILE NOT EOF

Example 4 – Process student enrolments

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Write an algorithm for a program that will read a file of student records who are enrolled in a course, and select and print only the student number, name, address of those students enrolled in a course unit named Programming 1. Each student record contains student number, name, address, postcode, gender and course unit number. The course unit number for Programming 1 is 18500. Print the total students enrolled in the course at the end of the report.

```
Process_student_enrolments
Set total_students_enrolled=0
OPENFILE 'student_record.txt' FOR READ
WHILE records exists
    READFILE Student_no,name,Address,postcode,Gender,Course_unit
    IF Course_unit ==18500
        Add 1 to total_students_enrolled
        Print student_no, name, Address
    ENDIF
ENDWHILE
CLOSEFILE 'student.record.txt'
Print total_students_enrolled
```

Preparation Scenarios

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- a) A program is required to read 12 months from a file. Write a Pseudocode insert these months to a list and display them.
- b) Write a Pseudocode for a program that will read a file of student records, which contains the Student name and marks. Print only the Student records that are passed. (ie. If the mark is above 50 the student is passed).


```
READ_MONTHS
SET temp,month[]
OPENFILE 'month.txt' FOR READ
FOR i=1 to 12
    READFILE 'month.txt',temp
    month.append[temp]
ENDFOR
CLOSEFILE 'month.txt'
```