ch1-4 Review

devo

6 Oct 2005 CMPT14x Dr. Sean Ho Trinity Western University Reminders: 1) journals in folder

TRINITY WESTERN UNIVERSITY

http://cmpt14x.seanho.com/

Announcements

Midterm ch1-4 this Friday in-class

- Includes material in text not covered in class!
- Expect questions similar to quizzes
- Bring blank sheets of paper
- Closed book/notes/laptop/phone/calc
- Review on Thu

Thanksgiving next Mon: no M lab section
 CMPT140 final W-Th 26-27Oct in-class
 CMPT145 final W 14Dec 2-4pm Neu13



Ch1-4 review

Ch1: Problem solving Top-down, WADES Ch2: Your first Modula-2 program Modules, variables, expressions, type Ch3: Program Structure Sequences, IF, loops Ch4: Procedures Parameters: value vs. variable, actual vs. formal Functions, recursion

Ch1: Problem solving

Computing scientists as toolsmiths Top-down vs. bottom-up; WADES Client --> Designer --> Implementer Requirements doc, Design spec, Code VARiables and CONSTants Abstract data types 5 hardware abstractions 5 control/flow abstractions



Quiz chl (4 questions, 20 marks, 10 minutes)

Copy this sentence and fill in the blanks:

- "Computers are t____, and computer scientists are t_____
- What are the five steps of top-down problem solving?
 - (it's okay if you don't get the exact words, but write the concepts)
- What's the difference between 3, 3.0, and "3.0"?
- Write down the three logical operators and evaluate them on your choice of TRUE and FALSE operands



Ch2: A basic Modula-2 program

Modules

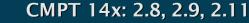
Structure of a program module IMPORTing library functions Declaring variables, constants; initializing Reserved words, identifiers Operators on basic types: +, -, *, /, DIV, ... Comparison operators BOOLEAN operators, shortcut Precedence, type conversion Input/output on basic types (see next slide)

Summary of I/O routines we know

From STextIO: ReadChar (char); WriteChar (char); WriteString (string); From SWholeIO: ReadInt (int); ReadCard (card); WriteInt (int, width); WriteCard (card, width);

From SRealIO:

- ReadReal (real);
- WriteReal (real, width);
- WriteFloat (real, sigFigs, width)
- WriteEng (real, sigFigs, width)
- WriteFixed (real, place, width);



Quiz ch2 (3 questions, 20 marks, 10 minutes)

Mark each of the following 6 strings with "ok" or "not ok" for being an identifier:

> StudentRecord monthly budget

Ζ

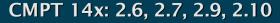
10thAnniversary WriteString twu.ca

What does this code snippet output?

WriteString ("Hello"); WriteString ("World");

Write a complete Modula-2 program that reads a character from the user and prints it back to the screen.

- Don't worry about "pausing" at the end of the program
- Hint: remember the import and declaration blocks



Ch3: Basic Program Structure

Statement sequences
Selection (IF, ELSE, ELSIF)
Repetition/loops (WHILE, REPEAT)

Top-of-loop vs. bottom-of-loop testing

Boolean expressions



Quiz ch3 (# questions, 20 marks, 10 minutes)

- (8pts) Evaluate the following Boolean expressions, or if they give an error, indicate why:
 - (3 + 5 < 9) AND (14 MOD 3 = 2)
 - 7/3 = 2 OR 5>3
 - (6 < 4) & (2 / (4 4) = 0)
 - ~ 12 # 4
- (3pts) What is wrong with this loop? How would you fix it?

REPEAT

counter := 9;

statement sequence;

counter := counter - 1;

UNTIL counter < 0;

 (9pts) Write a program to convert inches to centimetres or vice versa, depending on user input.

10

Ch4: Procedures

Declaring procedures Procedure parameters: Formal vs. actual parameters Value vs. variable parameters Scope Function procedures RETURN • Use in expressions (example)



Quiz ch4 (3 questions, 20 marks, 10 minutes)

Describe in your own words the difference between value parameters and variable parameters.

- Write a Modula-2 procedure Swap that swaps the values of its two REAL parameters
- Write a function procedure SortPair that swaps the values of its two REAL parameters iff the first is greater than the second. The function should return TRUE iff a swap has been performed.



TODO items

Midterm ch1-4 tomorrow!

- Includes material in text not covered in class!
- Expect questions similar to quizzes
- Bring blank sheets of paper
- Closed book/notes/laptop/phone/calc
- Lab4 next Tue/Wed: 5.11 #(26 or 28 or 32)

M-lab section can turn it in up to a week late

- Quiz ch5 postponed until Fri 14Oct
- Reading: through §5.5 for Wed 12Oct

