

UNIVERSITY OF TORONTO
Faculty of Arts and Science
Midterm Exam – February 2006
CSC 309 H1 S
Instructor – Eyal de Lara
Duration – 1 hours

Examination Aids: One single-sided hand-written 8.5"x11" page containing notes

NAME _____

STUDENT NUMBER _____

PART I (Short Answers): _____ /20
PART II (Programming): _____ /80
Total: _____ /100

Part I of this examination is a series of short-answer questions.

Part II of this examination is a series of programming exercises.

Answer all questions in the spaces provided on this examination paper. There is no need to use more space than is provided. If you must, then use the back of the examination paper and so indicate in your answer.

General Advice:

- Skim through the entire exam before beginning your detailed work, to get a sense of where best to spend your time; if you get stuck on one question, go on to another and return to the difficult question later.
- Show your work, not just the final answer. Partial credit will be granted in cases that demonstrate correct reasoning, even if an error leads to an incorrect final result.
- For the programming exercise, if unsure of API details or language syntax details, try your best and include a comment indicating what you are attempting to achieve.

Good luck!

Part I – Short Answer Questions

1.- [5 points] XML is most commonly used to store data or content (e.g., XHTML, MathXL). Give one example of another application of XML.

2.- [5 points] Describe one **disadvantage** of storing information in XML format.

3.- [5 points] Describe one benefit of describing an XML document with a DTD.

4.- [5 points] Briefly describe how event bubbling works in DOM.

Part II - Programming Question

5. – [50 points] Develop an XML application for storing information about diamonds. For each diamond, you should keep track of the following details:

- Carat weight (this is a real value, e.g., 0.25)
- Clarity (one of FL,IF,VVS1,VVS2,VS1,VS2,SI1,SI2,I1,I2,I3)
- Cut shape (one of oval, round, pear, rose)
- Purchase price
- Date acquired
- Selling price
- Date sold
- Image (a URL for a photograph of the diamond)

a) [20 points] Provide a DTD for your XML application.

b) [5 points] Provide a sample XML file that references your DTD. The sample file should include data for at least 1 gem.

c) [25 points] Using JavaScript and XHTML write a web application that reads an XML document that references your DTD and prints on the browser the total number of rose-shaped diamonds.

Extra space for question 5

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6.- [30 points] Using JavaScript and XHTML write a “stop the clock” web game. Initially, your web page should present users with the interface show in Figure 1. When the user presses the “Start” button, your application will start incrementing the value shown in the text box by 1 every millisecond, i.e., the text box will show how many milliseconds have passed since the user pressed the “Start” button. When the user presses the “Stop” button, your application will stop incrementing the text box, and will show the user’s score in a popup window (see Figure 2).

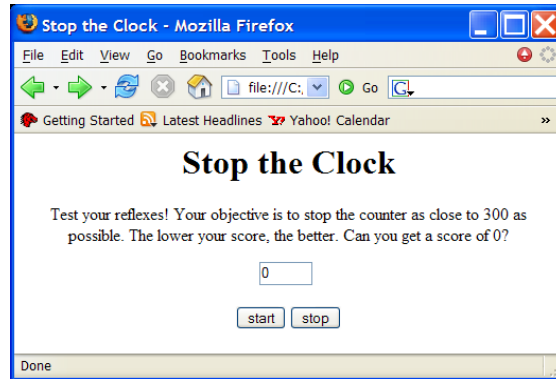


Figure 1

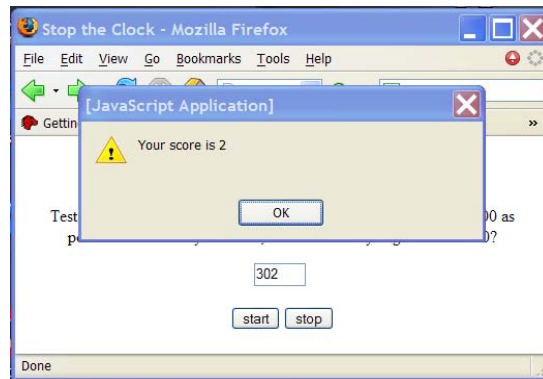


Figure 2

Extra space for question 6