Concepts of Programming Languages, CSCI 305, Fall 2021
Programming Language Service or Construct Presentation and Paper

Nov. 17th (Wednesday)
Error handling and exceptions – Ryan & Brandon, 1st
Virtual machines – Ed & Trevor, 2nd

Nov. 19th (Friday)
Initialization and finalization – Matt & John N., 1st
Inheritance - Nathan 2nd

Service or construct and team must be chosen by Oct. 15.
Presentations will be on Nov. 17 (2 presentations) or Nov. 19 (4 presentations)

Working in pairs, write a 6-page paper and deliver a 20-minute presentation. Choose a service/construct that is present in a number of different programming languages.

Present an overview of the service or construct. Describe why your group chose this, what issue is addressed, what the challenges are, how this was handled historically, what languages offer this service or capability, the different "flavors" of the service or construct and the different ways this can be implemented.

Language designers must weigh the pros and cons of services/constructs and implementation specifics, making the best design tradeoffs. Your paper and presentation should be about these design tradeoffs, making the pros and cons clear.

Walk through examples of at least two different languages which offer this service or construct.

Conclude the entire presentation with 2 +/- 1 multiple choice questions. This tiny quiz will be given at the end of your talk to help you determine how well your team got the material across, and to reemphasize to the audience those points that you consider most important. Use paper for the quiz. If you provide me with a copy of the quiz at least an hour before class, I will make copies for the class. Also, provide me a copy of the answers with answers. I will grade the quiz and let you know how well the students learned your lesson.

When researching your chosen service or construct, begin with the material in the text, and supplement that with information from the web or another source. (In some cases material is at the companion site: https://booksite.elsevier.com/9780124104099/, go to the "Sections and sub-sections" link, https://booksite.elsevier.com/9780124104099/content/Sections%20and%20Sub-sections/Scott%204e_Supplementary%20Sections.pdf.)

Let me know when your group has chosen a service or construct. I will post your topic so that another group does not choose the same topic.

The presentation should be 20 minutes, not counting the audience questions and the quiz.

Possible services capabilities/constructs:

- first class functions (lambda expressions) – Section 3.6.4
- orthogonality – Section 7.1.3
- parametric polymorphism – Section 7.3
- parameter passing – Section 9.3
- exception handling – Section 9.4
- event handling – Section 9.6
- classes & generics – Section 10.1
- encapsulation & inheritance – Section 10.2
- initialization & finalization – Section 10.3
- polymorphism and dynamic method binding – Section 10.4
- multiple inheritance – Section 10.6 (this material is given on the companion site, http://booksite.elsevier.com/9780124104099/content/Sections%20and%20Sub-sections/Scott%204e_Supplementary%20Sections.pdf)
- concurrency – Chapter 13
- implementing synchronization and/or communication in concurrent systems – Section 13.2 & 13.3
- implementing message passing in concurrent systems – Section 13.5 (material is given on the companion site)
- dynamic linking – Section 15.7 (material is given on the companion site)
- virtual machines – Section 16.1
- iteration - Loop improvements – Section 17.5 & 17.7 (material is given on the companion site)
- another service or construct of your choice.

Your write-up should be in your own words, with outside material quoted and referenced, and submitted via Turn-It In (accessed via Moodle).

Turn in:

- Write-up (submitted via Turn-It In assignment on Moodle)
- Visual aids
- Multiple choice quiz – with and without the answers.

Your presentation will be graded using the following form:

Oral Assessment Form

Form updated: 4/21/2014

Course Number: CSCI 305 **Semester:** Fall 2021 **Date:** Nov. 17 or 19

Presenters: **Evaluator:**

Topic: Programming Service or Capability

Audience types: (1) General (2) Peers

Content 1 = Poor, 2 = Needs Improvement, 3 = Good, 4 = Excellent

Material is relevant to topic	1 2 3 4
Topic is explored in depth • Why chose topic • Issue addressed • Challenges involved	1 2 3 4
Student is competent and knowledgeable about topic	1 2 3 4
Reliable sources were used, text from outside sources are quoted and referenced and references are in APA format	1 2 3 4

For This Presentation Only

Different ways of handling the service capability	1 2 3 4
Ways of implementing and design tradeoffs (pros and cons)	1 2 3 4
Examples of how programming languages have employed each form	1 2 3 4
How the different forms are implemented	1 2 3 4

Organization

Clear overview / objectives are given	1 2 3 4
Major issues are covered	1 2 3 4
Presentation has a logical sequence with smooth transitions	1 2 3 4
Clear conclusion or summary is given	1 2 3 4

Delivery

Student projects confidence and mastery	1 2 3 4
Student is relaxed, natural and spontaneous*	1 2 3 4
Student speaks clearly*	1 2 3 4
Appropriate vocabulary and grammar are used	1 2 3 4
Infrequent use of notes are made	1 2 3 4
Students maintains eye contact with audience	1 2 3 4
Effective use is made of visual / technical aids*	1 2 3 4
Presentation is within the time limitations*	1 2 3 4
Answers questions effectively (demonstrates knowledge of topic)	1 2 3 4

* See notes on the back.

Space is available for comments or notes on the back.

Notes

Delivery

- Student is relaxed, natural and spontaneous – the presentation was not rushed
- Student speaks clearly – No um's, ah's, etc.
- Effective use is made of visual / technical aids - Avoid distracting special effects
- Presentation is within the time limitations - The length of the presentation is within the specified times, neither too long nor too short

Comments:

The point breakdown will be:

Presentation (60 points)	
Completeness of presentation content Different ways of handling the service capability are described Pros and cons are given Examples of how programming languages have employed each form is discussed How the different forms are implemented is discussed	1 2 3 4
Quality of presentation content	1 2 3 4
Organization of presentation	1 2 3 4
Delivery or presentation	1 2 3 4
Paper (30 points)	
Completeness of paper content	1 2 3 4
Quality of paper content	1 2 3 4
Organization of paper (Title and subheadings are used, paragraphs are cohesive, introductory and concluding paragraph)	1 2 3 4
Mechanics (grammar, spelling, tone and length are appropriate, references are in APA format, similarity result from Turn-It In is 3% or less)	1 2 3 4
Quiz (10 points)	
Quality of the questions	1 2 3 4