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Introductions & Review (1)

CS 241 – Survey of OOP & Data Structures

Macbeth – Week 1

Agenda

- Invite the Spirit
  - Opening Prayer
  - Scripture or Quote … Friday's are "Music Friday"
- Code Together
- Syllabus
- Preparation

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Invite the Spirit

Moses 1:6

And I have a work for thee, Moses, my son; and thou art in the similitude of mine Only Begotten; and mine Only Begotten is and shall be the Savior, for he is full of grace and truth;

Introductions

- Contact Information:

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  STC 330G (aka "The Fishbowl")
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  Office Hours: Tue & Thu 3-5pm

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Class Overview

- Outcomes:
  - Be able to articulate and be conversant in the principles of Object Oriented Programming (OOP).
  - Be able to design and write programs that correctly use OOP constructs to some complex problems.
  - Be able to articulate the strengths and weaknesses of common data structures in various scenarios.
  - Appropriately use common data structures to solve complex problems.

- We will be using Python 3.

- This is a **PROGRAMMING COURSE** and so you should expect to practice the art of programming **MANY** times this semester. Your grade will be 20% on preparation work (short code, quizzes, reflections) and 70% project work (long code).

- There will be a final exam worth 10% which will be a take home written exam. You will have 2.5 weeks to complete it (see the Final Exam Study Guide in the I-Learn Welcome section).

Weekly Schedule

- All reading and coding instructions are in I-Learn.
- All due dates are in I-Learn. When there are university holidays, due dates in I-Learn have been moved to after the holiday.

	Monday	Tuesday	Wednesday	Thursday	Friday
Preparation	Complete Reading				
Teach	Explore New Topic		Team Activity	Explore New Data Structure	Explore Assignment & Project
Ponder	Submit by midnight the previous weeks reflection.	Submit Checkpoint A	Submit Checkpoint B & Team Activity Quiz	Submit Data Struc-ture Homework Quiz	
Prove	Submit by midnight the previous weeks assignment, project, or milestone.				

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Checkpoints

- There will be 2 checkpoints every week (except weeks 11 and 14).
- Most checkpoints will consist of writing a small piece of code and submitting it on the Linux server. Other checkpoints will be I-Learn quizzes.
- All code checkpoints are auto-graded using testBed and therefore no partial credit is given. Do not submit your code until it passes testBed.
- Completing the checkpoints per the schedule in I-Learn will prepare you to be successful on the weekly assignment/project.
- The last day to submit a checkpoint for full credit is before midnight on the last day of class.

Checkpoints	5% of Grade
Team Activities	5% of Grade
Data Structure Homework	5% of Grade
Reflection	5% of Grade
Assignments & Projects	70% of Grade
Final Exam	10% of Grade

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Team Activities

- There will be 1 team activity every week (except weeks 1 and 14).
- You will be put into a team during week 2 and you should sit with your team for the entire semester.
- Each team activity will consist of writing a small piece of code together. Bonus points can be earned by doing stretch challenges involving more code.
- If you don't finish the code as a team in class, you can individually or as a group finish the code after class.
- You will self-evaluate your learning experience using an I-Learn quiz.
- Active participation and prompt reporting of all team activities will prepare you to be successful on the weekly assignment/project.
- If you miss class on a team activity day, you may obtain partial credit by completing the coding activity and self-evaluation on your own.
- The last day to submit a self-evaluation for a team activity is midnight on the last day of class.

Checkpoints	5% of Grade
Team Activities	5% of Grade
Data Structure Homework	5% of Grade
Reflection	5% of Grade
Assignments & Projects	70% of Grade
Final Exam	10% of Grade

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Data Structure Homework

- There will be 1 data structure homework each week (except weeks 1 and 14).
- After completing the reading and coding (if appliable), you will take an I-Learn quiz to self-assess your work.
- Timely completion of the homework will prepare you to be successful on both the weekly assignment/project and on the final exam.
- The last day to submit a homework quiz is before midnight on the last day of class.

Checkpoints	5% of Grade
Team Activities	5% of Grade
Data Structure Homework	5% of Grade
Reflection	5% of Grade
Assignments & Projects	70% of Grade
Final Exam	10% of Grade

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Reflection

- There will be a weekly reflection (except week 14) that you need to complete and submit in I-Learn.
- Use the text file provided in I-Learn each week to provide your answers.
- The purpose of the reflection is to enable deeper understanding of the material and to identify any lingering questions.
- All reflections are due on the date shown in I-Learn. No late reflections will be graded.

Checkpoints	5% of Grade
Team Activities	5% of Grade
Data Structure Homework	5% of Grade
Reflection	5% of Grade
Assignments & Projects	70% of Grade
Final Exam	10% of Grade

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Assignments & Projects

- There are 5 Assignments (single week duration) and 3 Projects (multi-week duration).
- Each assignment and project will have 5 minimum requirements that must be met (for assignments 1-4, passing testBed means all 5 have passed). These requirements will be presented in class and posted to I-Learn announcements each week.
- You may submit or resubmit (for an better grade) assignments and projects late for a maximum score of 85% if all requirements pass, good comments are in the code, and no technique problems exist. Code that does not satisfy these conditions will not be graded past the due date.
- The last day to submit or resubmit an assignment or project after the original due date is before midnight on the last day of class.
- Milestones deliveries are intended to encourage you to stay on track for multi-week projects. Design deliveries are intended for you to practice deliberate and methodical design activities before embarking on coding activities. Active and timely participation in both milestones and design activities will earn you the associated points.

Checkpoints	20% of Grade
Team Activities	10% of Grade
Assignments & Projects	70% of Grade

Project Name	Weeks
Skeet	6, 7
Asteroids	8, 9, 10, 11
Movie Analysis	12, 13, 14

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Assignments & Projects

- Assignments and Projects are graded using the following rubric (which takes precedence over any rubric in I-Learn):

100%	All minimum requirements passed (for assignments 1-4, this means testBed passes)
90%	All minimum requirements passed but poor comments in the code.
85%	One requirement fails
80%	Two requirements fail
75%	Three requirements fail
70%	Four requirements fail
<70%	All requirements fail or code does not run.

- Additional points will be deducted for not implementing the techniques discussed in class.

Course Materials

- Reading:
  - There is no textbook. I-Learn has all the reading material including links to websites for each week.
- Linux
  - You need access to the CSEE department Linux Server (same as CS124)
  - You will need to either use Terminal on Mac or use Putty or MobaXterm on Windows
  - Password is either "Temple4dpc", or the first part of your BYUI email address (before the @), or the password you used last semester.
- REPL – https://repl.it
  - Used to write Python code together during class.
- GitHub – https://github.com/macbeth-byui/CS241
  - Contains solutions for checkpoints, team activities, and data structure homework
  - Contains REPL links used in class (see the wiki page in GitHub)
- Slack – https://slack.com/downloads
  - Used to ask questions, answer questions, and read responses from me and others
  - Our workspace: byui-cs241-18w-01
  - You must register with your byui.edu email address
- PyCharm – https://www.jetbrains.com/pycharm/download
  - Used to develop python assignments/projects later in the semester (not on Linux)
  - Also need to download and install Python 3
- Lucid Chart – https://www.lucidchart.com
  - Used to create UML diagrams later in the semester

Classroom Policies

- Academic Honesty
  - Students are expected to observe the BYU-Idaho Honor Code.
  - All work must be original, and created by the student. Work from another course cannot be submitted for assignments in this course. Work from past semesters also cannot be submitted for this course.
  - The reuse of published online solutions not provided by the teacher is prohibited.
  - Proper academic collaboration means that you neither share your code with anyone else nor use the code someone has shared with you (intentionally or unintentionally).
  - The only exception is when the sharing of code is part of a classroom learning activity where everyone is participating.
  - Failure to follow these rules will result in either a zero or an immediate failure of the course.
  - It is appropriate to use online resources to supplement your learning and find answers to technical questions.

- Extenuating Circumstances
  - An “Extenuating Circumstance” is defined as one involving either a family or medical emergency.
  - If an “Extenuating Circumstance” prevents you from meeting a project or assignment deadline, please try to communicate with me before the deadline is missed.

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Getting Help

- BYU-Idaho has many resources to help you.
  - My office hours are: Tuesday, Thursday: 3:00pm – 5:00pm
  - Visit the Computer Science Help Center (STC 243)
  - Sign up for a free tutoring session from the Academic Support Center - Search for "tutor" on the BYU-I website for the link.

- Remember that it is your responsibility to ensure that lab assistants and tutors do not give you the solution. Ask questions to gain understanding and then apply it in your work.

- Using the class GitHub repository:
  - All checkpoint, team activity, and data structure solutions are posted in GitHub
  - If you have finished your work, you can look at my solution to compare.
  - If you are stuck and cannot figure out how to move forward, you can look at my solution. After looking at my solution, try to solve the problem on your own again. Copying my solution will not prepare you properly to succeed on the assignments and projects.

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Preparation

- Read Syllabus & Explore I-Learn
- Materials:
  - Bookmark useful Python Reference Websites
  - Bookmark GitHub and look at Wiki
  - Download Slack and join our class Workspace
  - Connect to Linux (install new tools if needed)
- Complete Reading and Submit Checkpoint 1A