



Contract for CSS 497

Computer Science and Software Engineering Capstone

UNIVERSITY of WASHINGTON | BOTHELL

COMPUTER SCIENCE & SOFTWARE ENGINEERING

18115 Campus Way NE · Box 358534 · Bothell, WA 98011-8246
(425) 352-5279 <http://www.uwb.edu/css>

SECTION A

STUDENT INFORMATION

Full Name (Last, First) Debesai, Samuel

Student ID 1723230

STOP: Are you ready for your capstone experience?

Have you completed all core courses and 10 credits of CSS electives? (please check answer) ☒ YES ☐ NO

If you are missing **any** of the required prerequisite courses (CSS 301, CSS 342, CSS 343, CSS 350, CSS 360, CSS 370, CSS 422, CSS 430, and 10 credits of CSS electives), you must speak with your faculty advisor about whether you will have the necessary skills for your capstone. If (1) your faculty advisor feels that you will be prepared **and** (2) your missed classes match any of the cases a-d in the following table, then you must provide a justification in Section E of this contract.

Case	Core missing	Electives missing	Action
a	1 course	0	Justify in 497 contract
b	0	5 credits	Justify in 497 contract
c	1 course	5 credits	Justify in 497 contract
d	0	10 credits	Justify in 497 contract
e	2 courses	0	Justify in petition form
f	All other cases		Capstone denied in most cases. See CSS Academic Advisor

If you are missing two core courses (case e), but your faculty advisor feels that you are ready to begin your capstone, you must submit a Course Petition form to the CSS Academic Advisor.

Capstone contracts submitted by students missing **more than two prerequisite courses** (case f) will be denied.

SECTION B

CREDIT DISTRIBUTION

(Credits from all quarters must equal 10)

First Quarter			Second Quarter*			Third Quarter*		
Autumn	2021	10						
Quarter	Year	Credits	Quarter	Year	Credits	Quarter	Year	Credits
Grade Option (Check only one) <input type="checkbox"/> Decimal <input checked="" type="checkbox"/> CR/NC								
Faculty Advisor:								

*** NOTE: The grade will be an "N" grade (meaning in progress) until the end of the term in which the student has completed both (1) their CSS 497 AND (2) their CSS 497 prerequisites.**

SECTION C

CAPSTONE INFORMATION

Please answer the following questions regarding your proposed Capstone project.

Project Title:					
Option: (Circle/highlight one)	1 Sponsored Capstone	2 Current Employer	3 Faculty Research	4 Individual Project	5 Group Project
Capstone Sponsoring Organization(s):					
Did you sign a non-disclosure statement or agreement with the Sponsoring Organization? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Brief Description (75-125 words)					
<p>This project is the development of a Peer-2-Peer (P2P) marketplace focused on the buying/selling of Animal-based products. This online web service will be a platform for people to connect through a decentralized means to target their consumer needs. The areas of focus will be centered around the processes of buying, selling, listing items, and managing your own seller's page for animal products. I am choosing to build this P2P eCommerce website to enhance my skills in full stack development and work on design principles specifically in the seller role for the peer transaction.</p>					

SECTION D

Please answer the following questions regarding your proposed Capstone project.

Answer every question in detail directly after the question (refer to <http://courses.washington.edu/css497/contract.html>). Please describe clearly and with grammatically correct, complete sentences. Hand written contracts will not be accepted.

☐ If you are currently unable to provide this level of detail, check this box. You will be required to submit an updated proposal by week 3. Approval contingent upon updated proposal.

1. Describe the capstone.

a. Include any relevant background information. This project is the development of a Peer-2-Peer (P2P) marketplace focused on the buying/selling of Animal-based products.

- This online web service will be a platform for people to connect through a decentralized means to target their consumer needs. The areas of focus will be centered around the processes of buying, selling, listing items, and managing your own seller's page for animal products.
- I am choosing to build this P2P eCommerce website to enhance my skills in full stack development and work on design principles specifically in the seller role for the peer transaction.
- I will be building the whole website through the Django web framework which follows the software design pattern of Model View Template (MVT).
 - The Model supports the codebase
 - The View support visual data displaced

- The Template defines the structure of the model and view
- This concept is developed under the idea of decentralizing software in the new age of consumerism. P2P is usually understood for the sole entity to engage with the system yet the simple concept of allowing pet owners to sell/buy items on an online platform isn't widely popularized yet. By engaging a domain specifically for animals, people can find a way to discover many listings for a defined marketplace.
- Some of the major actors that are affected in the transactional interaction are:
 - Sellers
 - Buyers
 - System
 - Animals
 - admins

b. Clearly describe the benefits of the proposed project (e.g., 'What is this project going to accomplish?').

- The project is going to allow for sellers to better direct their consumers to their applicable market. By enhancing this specific marketplace, I can create a platform and expansive site that gives reasons for animal owners to not hold onto products with no value to them and their pets, but rather grant another person's pets pleasure.
- Giving agency to people allows for sellers/buyers to control the prices of their items sold/bought so that they can consume/deliver items that aligns with their lifestyle and animal's needs.

2. Provide a clear, detailed description of the academic merit of the proposed project. Academic merit is defined as ways in which you will further develop your core and advanced technical competencies. Please list the competencies you will focus on and provide a brief description of how each one will be further developed by your involvement in this project. (For more information, see "Core & Advanced Competencies" at www.uwb.edu/bscss/css497/student-guide/competencies)

1. Creativity – Most pet items are bought from major pet stores like Petsco, PetSmart, mud bay, etc., but none of the stores grant the consumers a chance to trade items with other animal owners. This P2P website gives the owner a chance to sell unused items as well as buy items at a potentially discounted rate then the retail values.
2. Technology Evaluation & Selection – I must be able to find the correct technology stack and learn their API and framework to develop under the model view template model that will support my project. I am also creating a tech that will take advantage of the decentralized systems of peer 2 peer marketplaces.
3. Requirements Definition & Analysis – I am designing and defining the specifications that are required to fulfill the successful website. Although Full stack development is hefty in its manner, I will be creating the minimum viable product to engage my new technology.
4. Software Development Methodologies – I will be using Agile as my software development life cycle. Using my Work breakdown structure, I will be programming with intent to create a functional product within the 10 week allotted for the capstone.

5. Project Estimation Techniques – I will be using skills learned in CSS 461 Software management course to be able to allocate my resources to the best of my abilities. This will help me estimate the development processes and what I can do to handle the tasks ahead.
 6. Internet Applications Development – Web development is the central focus of my project. I am creating a web development that will sit on the internet that runs off the Django stack made for a specific consumer base.
 7. Database Design – I will be implementing a database that will do the heavy lifting of the shared data across the user bases including the sellers and buyers. This will make sure that information to complete transactions will happen and be sent in a rapid and effective way.
3. Identify what specific software development tools you will use to complete this project and describe why they are appropriate.
- a. Python – Will be my backend for web development. It's appropriate because of its high performance language for website efficiency.
 - b. Django – Will be the web framework that supports Python's endeavors to create THE MVT development. Helps promote a secure and effective development that supports a full stack development project.
 - c. PostgreSQL – This database management application will support the interactions between the buyers and sellers and the shared data between the entities.
 - d. Nginx– This will be purposeful for what the deployed website will sit on. The web server will be responsible for the HTTP requests that are being made.
 - e. Bulma CSS – lightweight web frame to lay out the structure and style of the page.
 - f. Gmail – This will be the medium for which I will communicate with my faculty sponsor and the capstone advisor for guidance during the capstone milestones, reports, and personal questioning.
 - g. Google Docs/ Word – Will be used to be able to write up reports or any memorandums that are specified for the success of the capstone writing stages.
 - h. Zoom – I will be using zoom to telecommunicate my task and questioning to the faculty sponsor and the capstone advisor since I am intending to stay remote until presentations or further notice of safety measures.
4. List all computer equipment, office/lab space, human resources and/or financial support that are required to complete this capstone.
- a. Computer Desktop
 - b. Virtual Environment(Linux Lab)
 - c. Local Environment (Laptop)
 - d. Computer monitors
5. Provide a list of potential barriers and/or problems that may slow down or potentially prevent the successful completion of this capstone.
- a. Loss of codebase (DB, code, server read/writes over repo, etc.)
 - b. Invisible errors – sanity testing causes errors that go unseen by test cases
 - c. software regression – regression in the code base causing the program to stop functioning

- d. feature creep or not being able to complete MVP (Minimum Viable Product)
 - e. Job Interviews Process – reporting to interview process potentially prioritized for future career
 - f. Potential sickness caused by current pandemic circumstances (I am double vaccinated)
6. Provide a detailed project plan including proposed deliverables and due dates. The deliverables must include the date of the colloquium you plan to observe prior to the quarter in which you plan to present, and the date of the colloquium when you plan to present.

a. software development process

- Agile SDLC (September 29 - December 17)

b. Reporting

- Report #1 – End of Week 3, Oct. 11
- Report #2 - End of Week 6, Nov. 1
- Report #3 - End of Week 8, Nov. 15
- Poster, Presentation - Due at Autumn 2021 Colloquium
- Final Report - End of Week 10, Nov. 29
- Dec. 17 Colloquium

c. Specifications

Figure 1: Work Breakdown Structure

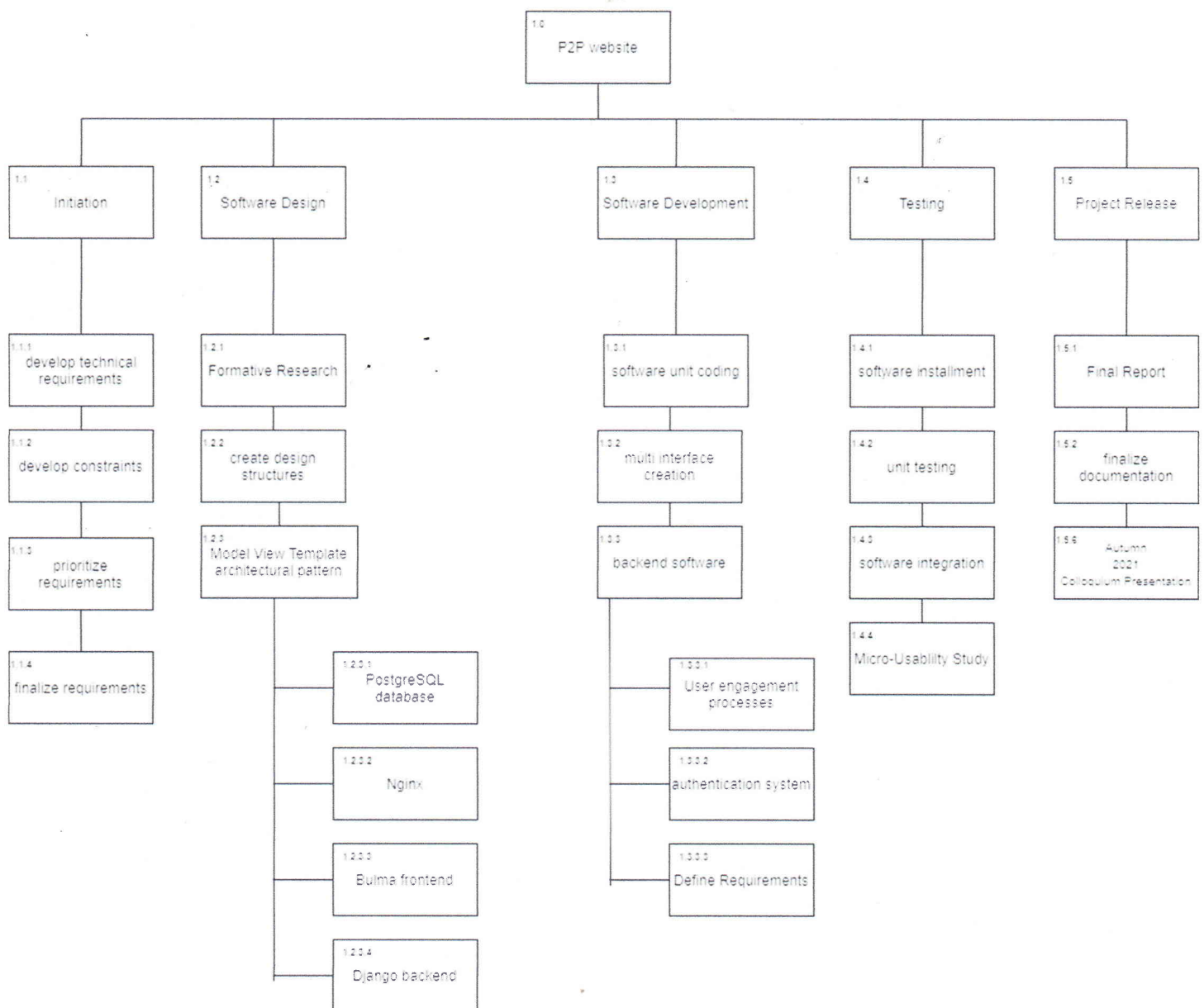


Figure 2: Gantt Chart

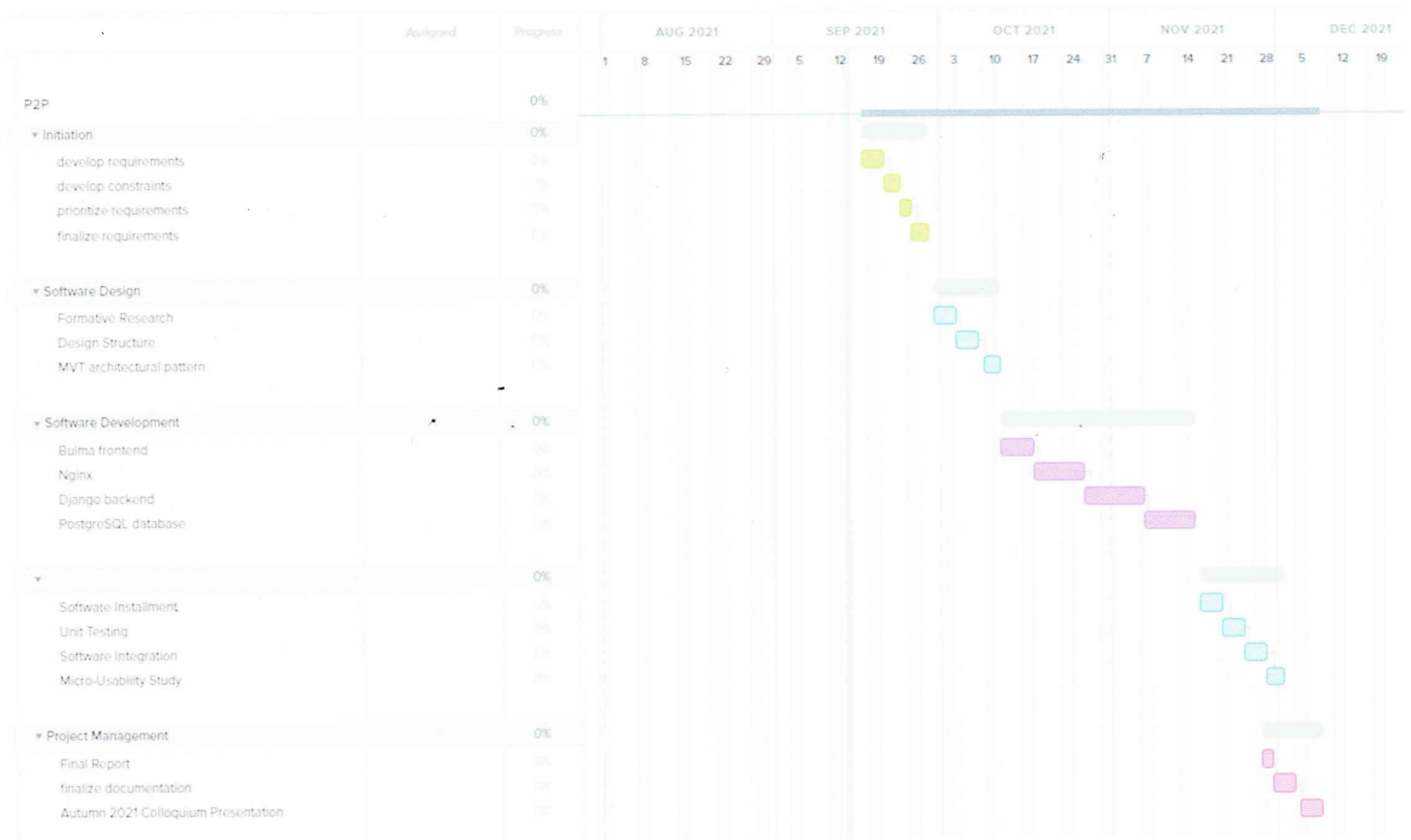


Figure 3: Time Estimate

P2P Marketplace		Implementation	
		Planned	Actual
Budget plan	Project Tasks		
1.1	Phase 1 - Initiation	80 hrs	
	1.1.1 - Develop technical requirements	20 hrs	
	1.1.2 - Develop constraints	20 hrs	
	1.1.3 - prioritize requirements	20 hrs	
	1.1.4 - finalize requirements	20 hrs	
1.2	Phase 2 - Software Design	240 hrs	
	1.2.1 - Formative Research	20 hrs	
	1.2.2 - Create Design Structures	20 hrs	
	1.2.3 - Model View Controller Architectural	40 hrs	
	1.2.3.1 - PostgreSQL	40 hrs	
	1.2.3.2 - Nginx	40 hrs	
	1.2.3.3 - Bulma frontend	40 hrs	
	1.2.3.4 - Django backend	40 hrs	
1.3	Phase 3 - Software Development	50 hrs	
	1.3.1 - Software Unit Coding	10 hrs	
	1.3.2 - Multi Interface Creation	20 hrs	
	1.3.3 - Backend Software	20 hrs	
1.4	Phase 4 - Testing	80 hrs	
	1.4.1 - software installment	20 hrs	
	1.4.2 - unit testing	20 hrs	
	1.4.3 - software integration	20 hrs	
	1.4.4 - Micro-Usability Study	20 hrs	
1.5	Phase 5 - Project Release	21 hrs	
	1.5.1 - Final report	10 hrs	
	1.5.2 - finalize documentation	10 hrs	
	1.5.3 - Autumn 2021 Colloquium Presentation	1 hrs	
Total Hours		471 hours	

7. Describe the methods and criteria you propose for evaluation of this capstone. Be specific.

- Successful Minimum Viable Product, meeting the expectations sponsors needs.
- Complete and correct deliverables (e.g., weekly status reports, micro-usability, code, etc.).
- Deliverables given to the advisor on time.
- Creating an excellent, clear poster.
- Giving an excellent, clear presentation at the colloquium.

SECTION E Please complete this section if you are missing any of the Capstone prerequisites (cases a-d from Section A).

To be completed only if you are missing prerequisites for CSS 497 (these courses are CSS 301, CSS 342, CSS 343, CSS 350, CSS 360, CSS 370, CSS 422, CSS 430, and 10 credits of CSS electives). Please write clearly and in grammatically correct, complete sentences.

1. Explain why the course(s) you are missing will not affect your capstone experience. That is, look at the course descriptions for the classes you have not taken and explain why you don't need that specific knowledge to be successful in your capstone.

2. Complete the table below to indicate (a) how you will spread out the CSS 497 prerequisites courses and (b) when you plan to take the prerequisite course(s) you are missing.

CSS 497 Capstone	<u>(Quarter, year)</u>	<u>(Quarter, year)</u>	<u>(Quarter, year)</u>	<u>(Quarter, year)</u>
(a) CSS 497 Credits (identify CSS 497 credit hours to be applied by quarter)				
(b) Capstone prerequisites (indicate when you plan to take remaining core + elective course(s))				

NOTE: Your last CSS 497 credits must be completed in or after the quarter you complete your last CSS 497 prerequisite. You will receive an "N" (meaning in progress) in all of your CSS 497 credits until you complete any missing prerequisites. If you have any questions as you fill out this table, talk with your CSS advisor.

3. Obtain the approval of your faculty advisor.

NOTE TO FACULTY ADVISOR: By signing below, you indicate that, in your opinion, this student is sufficiently prepared for their rigorous, academically challenging capstone project. Give an "N" grade (meaning in progress) until the end of the term in which the student has completed both (1) their CSS 497 AND (2) their CSS 497 prerequisites

Faculty Advisor Name: Arnold M. Lund
 Faculty Advisor Signature: [Signature]
 Faculty Advisor Email: lundam@uw.edu DATE: 9/15/21
 Student Signature: [Signature] DATE: 9/17/2021

NOTE: Signatures are required in the Signature Section, as well.

Student, Faculty Advisor & Capstone Sponsor Statement of Agreement

1. By initialing each box, the **Student** agrees to:

- [SD] Perform to the best of his or her ability and to the satisfaction of the Capstone sponsor(s) those assigned tasks related to the cooperative component of this contract and adhere to all personnel rules.
- [SD] Perform to the best of his or her ability learning activities negotiated with the faculty advisor as stated in the contract, including communicating with the faculty advisor according to the scheduled course meetings and other scheduled events as indicated in the contract.
- [SD] Talk with the Capstone sponsor, faculty advisor, CSS Capstone Coordinator, and other program representatives with regard to any changes, revisions, or concerns regarding the Capstone project. Meet with the CSS Academic Advisor to complete an audit of your degree completion.
- [SD] Complete all deliverables as described in the contract, present a poster and an oral presentation at the CSS colloquium.
- [SD] Prepare a final report if required by faculty advisor. For example, a final assessment of your Capstone experience including any "lessons learned" and advice for future students.
- [SD] Prior to the completion of CSS 497, prepare an abstract that is approved by the faculty advisor and the Capstone sponsor. The approved abstract needs to be turned in to the CSS Capstone Coordinator.
- [SD] Attend a colloquium prior to the one in which you present and attend the entire duration of the colloquium at which they present.

2. By initialing each box, the **Faculty Advisor** agrees to:

- [*Ad*] Provide instructional support and guidance by communicating regularly with students about their on-site experiences, pertinent readings, theoretical frameworks, and project designs.
- [*Ad*] Utilize meeting times with the student, for example, as an opportunity to develop writing skills by reviewing one or more drafts of the final paper, Colloquium poster and presentation, and/or software project, and the abstract.
- [*Ad*] Approve an abstract of the project prior to assigning the course grade. At the end of each quarter, assign a decimal grade or credit/no credit grade according to the evaluation criteria identified in the Capstone Contract. (Note: these criteria are reviewed during the program approval process of the Capstone contract.) Incorporate any feedback received from the Capstone sponsor into your final evaluation.
- [*Ad*] Give an "N" grade (meaning in progress) until the end of the term in which the student has completed both (1) their CSS 497 AND (2) their CSS 497 prerequisites

3. By initialing each box, the **First Capstone Sponsor** agrees to:

- [] Provide a good learning and training environment for the student, keeping routine work, such as typing and filing to a minimum.
- [] Evaluate the proposal and make agreements, if applicable, with the student and faculty advisor pertaining to the following: a) any and all intellectual property rights; b) non-disclosure or confidentiality of specific sponsor methods, technologies and/or business strategies; c) time-limitations for non-compete agreements between all parties; and d) acknowledgement of any and all rights to ownership of pre-existing knowledge.
- [] Work with the student and make explicit arrangements with the student concerning the overall goals described in this contract, communication with the student, expectations, and records of the student's hours and performance.
- [] Approve an abstract of the project prior to completion of the contract. Complete an evaluation of the student's performance if specified in Section D 7 and provide it to the CSS Capstone Faculty advisor.

4. By initialing each box, the **Second Capstone Sponsor** agrees to:

- [] Provide a good learning and training environment for the student, keeping routine work, such as typing and filing to a minimum.
- [] Evaluate the proposal and make agreements, if applicable, with the student and faculty advisor pertaining to the following: a) any and all intellectual property rights; b) non-disclosure or confidentiality of specific sponsor methods, technologies and/or business strategies; c) time-limitations for non-compete agreements between all parties; and d) acknowledgement of any and all rights to ownership of pre-existing knowledge.

- [] Work with the student and make explicit arrangements with the student concerning the overall goals described in this contract, communication with the student, expectations, and records of the student's hours and performance.
- [] Approve an abstract of the project prior to completion of the contract. Complete an evaluation of the student's performance if specified in Section D 7 and provide it to the CSS Capstone Faculty advisor.


The CSS Division Capstone Coordinator will coordinate the capstone and provide administrative support services as needed by the student, faculty advisor, and Capstone sponsor.

This contract may be terminated or amended by the student, faculty advisor, or Capstone sponsor at any time upon two weeks written notice, which is received and agreed to by the other parties.

Acknowledgement of the completion of the capstone requirement for the Bachelor of Science in Computing & Software Systems will be granted for the Capstone project when the CSS 497 Faculty Advisor has determined that the student has satisfactorily completed the work outlined in Section D 7.

CSS 497 provides students with the opportunity to earn academic credit while working on a project that has potential benefits for industry or community organizations. Students learn by connecting classroom theory and community-based experience through the completion of an academic project.

We, the undersigned, have read and approved the above proposal and understand the requirements of this proposal per the responsibilities identified in the preceding 'Statement of Agreement'.

<i>Arnold M. Lund</i>		lunda@uw.edu	9/15/21
Faculty Advisor	Signature	Email	Date
Student Name Samuel Debesai	Signature: Samuel Debesai	Phone: (206)-697-8010	Date: 9/15/2021
1 st Capstone Sponsor Name		Title	
Company/Organization Name		Phone	
Address	City	State	ZIP
Signature	Email	Date	
2 nd Capstone Sponsor Name		Title	
Company/Organization Name		Phone	
Address	City	State	ZIP
Signature	Email	Date	
After completing the contract give to the CSS Division Capstone Coordinator, Janet McDaniel, Discovery Hall room 352 V			

CSS Division Authorization Associate Professor & Chair William Erdly erdlyww@uw.edu		
	Signature	Date

Although the CSS Division has taken reasonable steps to ensure a positive learning environment with sponsors, it should be understood that this Capstone agreement has potential risks. In signing this Capstone Contract, the student acknowledges inherent hazards and risks, including but not limited to physical injury and death, and assumes those beyond control of the University staff and faculty.

In case of emergency, I, the student, give my consent for emergency medical treatment and agree to pay for any charges not covered by my personal health insurance. In addition, I understand my responsibilities as described in the Statement of Agreement on the reverse.

 _____ Student Signature	_____ 9/15/2021 Date	_____ sgd206@uw.edu Email
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