Weekly Milestone Meeting Agenda
Week 8

Date/Time: July 22 Thursday, 10:00-11:00 A.M. Durham

Location: https://duke.zoom.us/j/95799139363

Next meeting: July 29 Thursday, 10:00-11:00 A.M. Durham

Participants: Directory

Agenda prepared by: Luyao Zhang (Host)

Minutes by: Derrick Adam (Moderator)

Meeting Goal:

1. Communicate the milestones
2. Sync for moving forward
3. Team building and Q&A

Meeting Timeline:

Time	Discussion Topic	Presenter/Facilitator
10:00-10:10	Project milestone summary	Derrick Adam
10:10-10:30	UG researcher milestone and **peer evaluation** presentation (can be interactive)	Dylan Paul, Urjit Banerjee, Oum Lahade, Malika Rawal
10:30-10:50	Comments, Suggestion, and Expectation for upcoming weeks	Kartik Nayak, Yulin Liu, Fan Zhang, Luyao Zhang
10:50-11:00	Q&A	All

Weekly Milestone Meeting Agenda
Week VII

Date/Time: July 15 Thursday, 10:00-11:00 A.M. Durham

Location: https://duke.zoom.us/j/95799139363

Next meeting: July 22 Thursday, 10:00-11:00 A.M. Durham

Participants: Directory

Agenda prepared by: Luyao Zhang (Host)

Minutes by: Derrick Adam (Moderator)

Meeting Goal:

4. Communicate the milestones
5. Sync for moving forward
6. Team building and Q&A

Meeting Timeline:

Time	Discussion Topic	Presenter/Facilitator
10:00-10:10	Project milestone summary	Derrick Adam
10:10-10:30	UG researcher milestone and **peer evaluation** presentation (can be interactive)	Dylan Paul, Urjit Banerjee, Oum Lahade, Malika Rawal
10:30-10:50	Comments, Suggestion, and Expectation for upcoming weeks	Kartik Nayak, Yulin Liu, Fan Zhang, Luyao Zhang
10:50-11:00	Q&A	All

Weekly Milestone Meeting Agenda
Week VI

Date/Time: July 8 Thursday, 10:00-11:00 A.M. Durham

Location: https://duke.zoom.us/j/95799139363

Next meeting: July 15 Thursday, 10:00-11:00 A.M. Durham

Participants: Directory

Agenda prepared by: Luyao Zhang (Host)

Minutes by: Derrick Adam (Moderator)

Meeting Goal:
7. Communicate the milestones
8. Sync for moving forward
9. Team building and Q&A

Meeting Timeline:

Time	Discussion Topic	Presenter/Facilitator
10:00-10:10	Project milestone summary	Derrick Adam
10:10-10:30	UG researcher milestone and **peer evaluation** presentation (can be interactive)	Dylan Paul, Urjit Banerjee, Oum Lahade, Malika Rawal
10:30-10:50	Comments, Suggestion, and Expectation for upcoming weeks	Kartik Nayak, Yulin Liu, Fan Zhang, Luyao Zhang

10:50-11:00	Q&A	All

Weekly Milestone Meeting Agenda

Week V

Date/Time: July 1 Thursday, 10:00-11:00 A.M. Durham

Location: https://duke.zoom.us/j/95799139363

Next meeting: July 8 Thursday, 10:00-11:00 A.M. Durham

Participants: Directory

Agenda prepared by: Luyao Zhang (Host)

Minutes by: Derrick Adam (Moderator)

Meeting Goal:

      10. Communicate the milestones

      11. Sync for moving forward

      12. Team building and Q&A

Meeting Timeline:

Time	Discussion Topic	Presenter/Facilitator
10:00-10:10	Project milestone summary	Derrick Adam
10:10-10:30	UG researcher milestone and **peer evaluation** presentation (can be interactive)	Dylan Paul, Urjit Banerjee, Oum Lahade, Malika Rawal
10:30-10:50	Comments, Suggestion, and Expectation for upcoming weeks	Kartik Nayak, Yulin Liu, Luyao Zhang, Fan Zhang
10:50-11:00	Q&A	All

Weekly Milestone Meeting Agenda

Week IV

Date/Time: June 24 Thursday, 10:00-11:00 A.M. Durham

Location: https://duke.zoom.us/j/95799139363

Next meeting: July 1 Thursday, 10:00-11:00 A.M. Durham

Participants: Directory

Agenda prepared by: Luyao Zhang (Host)

Minutes by: Derrick Adam (Moderator)

Meeting Goal:
13. Communicate the milestones
14. Sync for moving forward
15. Team building and Q&A

Meeting Timeline:

Time	Discussion Topic	Presenter/Facilitator
10:00-10:10	Project milestone summary	Derrick Adam
10:10-10:30	UG researcher milestone and **peer evaluation** presentation (can be interactive)	Dylan Paul, Urjit Banerjee, Oum Lahade, Malika Rawal
10:30-10:50	Comments, Suggestion, and Expectation for upcoming weeks	Kartik Nayak, Yulin Liu, Luyao Zhang,
10:50-11:00	Q&A	All

Action Items:
1. **Derrick communicates with Prof. Fan Zhang after the meeting to collect his expectations for next week.**
2. **Writing**: from now on, all writing must go through:
   a. [Grammarly software](#)
   b. At least one weekly consultation at [Duke Writing Studio](#). (Please schedule an appointment A.S.A.P in advance.)
3. **Understand how to do research and be resourceful in Computer science and Economics**: Please schedule at least two consultations at [Duke research support](#) for Computer Science and Economics and document what you learned in the following milestone reports.
4. **Assignment Due:** Tuesday 11:00 P.M. to Derrick, with Luyao cc'ed in the email and in the google drive folder.
5. **Peer evaluations**: Tuesday 11:00 P.M. to Thursday 11:00 P.M., (After weekly milestone due and before our general meeting are the period for [peer evaluations](#)):
   a. Pair up and schedule a one-on-one meeting to present milestones to each other
   b. Review the peer's milestone submissions
   c. Reflect on how your peers' work inspire you to do better
   d. Provide constructive advice for your peer to improve
   e. Response to your peer's evaluation (revise if the suggestion is valid, reject and provide a reason if not)

      f.   The peer evaluation process should be reflected in the Google Doc by comments and reply to comments. Revisions should be placed below the original parts.

6. **General Meeting Presentations**: Please share the screen to show the Google Docs and Slides submissions.
7. **Cross-references**: provide all relevant information on your milestone submission Google doc and slides. E.g.
      a.   Insert Wapwire video URL to the slides.
      b.   Insert Lucid Chart with URL to the Google Doc.

Weekly Milestone Meeting Agenda

Week III

Date/Time: June 17 Thursday, 10:00-11:00 A.M. Durham
Location: https://duke.zoom.us/j/95799139363
Next meeting: June 17 Thursday, 10:00-11:00 A.M. Durham
Participants: Directory
Agenda prepared by: Luyao Zhang (Host)
Minutes by: Derrick Adam (Moderator)
Meeting Goal:
    16. Communicate the milestones
    17. Sync for moving forward
    18. Team building and Q&A
Meeting Timeline:

Time	Discussion Topic	Presenter/Facilitator
10:00-10:10	Project milestone summary	Derrick Adam
10:10-10:30	UG researcher milestone and **peer evaluation** presentation	Dylan Paul, Urjit Banerjee, Oum Lahade, Malika Rawal
10:30-10:50	Comments, Suggestion, and Expectation for upcoming weeks	Kartik Nayak and Fan Zhang, Yulin Liu, Luyao Zhang,
10:50-11:00	Q&A	All

Action Items:
8. **Writing**: from now on, all writing must go through:
      a.   Grammarly software
      b.   At least one weekly consultation at Duke Writing Studio. (Please schedule an appointment A.S.A.P in advance.)

9. **Understand how to do research and be resourceful in Computer science and Economics**: Please schedule at least two consultations at Duke research support for Computer Science and Economics and document what you learned in the following milestone reports.

10. **Peer evaluations**: Monday 11:00 P.M. to Thursday 11:00 P.M., (After weekly milestone due and before our general meeting are the period for peer evaluations):
    a. Pair up and schedule a one-on-one meeting to present milestones to each other
    b. Review the peer's milestone submissions
    c. Reflect on how your peers' work inspire you to do better
    d. Provide constructive advice for your peer to improve
    e. Response to your peer's evaluation (revise if the suggestion is valid, reject and provide a reason if not)
    f. The peer evaluation process should be reflected in the Google Doc by comments and reply to comments. Revisions should be placed below the original parts.

11. **General Meeting Presentations**: Please share the screen to show the Google Docs and Slides submissions.

12. **Cross-references**: provide all relevant information on your milestone submission Google doc and slides. E.g.
    a. Insert Wapwire video URL to the slides.
    b. Insert Lucid Chart with URL to the Google Doc.

Weekly Milestone Meeting Agenda
Week II

Date/Time: June 9, 10:00-11:00 A.M. Durham
Location: https://duke.zoom.us/j/95799139363
Next meeting: June 9, 10:00-11:00 A.M. Durham
Participants: Directory
Agenda prepared by: Luyao Zhang (Host)
Minutes by: Derrick Adam (Moderator)
Meeting Goal:
19. Communicate the milestones
20. Sync for moving forward
21. Team building and Q&A

Meeting Timeline:

Time	Discussion Topic	Presenter/Facilitator
10:00-10:10	Project milestone summary	Derrick Adam

Time	Discussion Topic	Presenter/Facilitator
10:10-10:30	UG researcher milestone presentation	Dylan Paul, Urjit Banerjee, Oum Lahade, Malika Rawal
10:30-10:50	Comments, Suggestion, and Expectation for upcoming weeks	Kartik Nayak and Fan Zhang, Yulin Liu, Luyao Zhang,
10:50-11:00	Q&A	All

Action Items Amendments:
1. Derrick sends out meeting minutes within 48 hours after the meeting ends.
2. All meeting recordings shall have been consented to by participants and not shared out of the presented group without further consents.
3. The guideline for asking questions:
   a. **Be resourceful**: before asking questions, first acquiring information via the searching engine(Google, YouTube, etc.), developer forum, and libraries, etc.
   b. **Work collaboratively**: conduct peer assessment for each other's work
   c. **Independent Thinker**: reflect and reason on your own first
   d. **Ask the right person**: ask IT about computer problems, ask lawyers about legal issues, etc.
   e. **Ask Efficiently**: collect thoughtful questions to be answered at our weekly milestone meetings.
4. This week's submissions are in Shared Google Docs and Slides (for the convenience of suggesting and commenting), but a notification of completion must be made by email.

Week I

Date/Time: June 2, 10:00-11:00 A.M. Durham
Location: https://duke.zoom.us/j/91369404327
Next meeting: June 9, 10:00-11:00 A.M. Durham
Participants: Directory
Agenda prepared by: Luyao Zhang (Host)
Minutes by: Derrick Adam (Moderator)
Meeting Goal:
22. Communicate the Project Expectations
23. Discuss Division of Labor and Weekly Milestones
24. Team building and Q&A

Meeting Timeline:
Time	Discussion Topic	Presenter/Facilitator

10:00-10:10	general project briefing and team introduction	Luyao Zhang
10:10-10:30	communicate project expectations to reach consensus	Yulin Liu, Kartik Nayak and Fan Zhang
10:30-10:40	graduate mentoring and weekly recitation introductions	Derrick Adam
10:40-11:00	researcher Q&A	Dylan Paul, Urjit Banerjee, Oum Lahade, Malika Rawal

Action Items

1. Derrick organizes weekly recitation meetings.
2. Project leads acquire resources and organize follow-up comments.
3. Derrick interviews each project lead (Luyao, Kartik, Fan, and Yulin) and collects weekly comments. Derrick compiles the comments with polished meeting minutes and sends them to all.
4. UG research team submit weekly milestones and questions by Monday 11:00 P.M. Durham to Derrick before the next milestone meeting
5. Derrick collects the UG research team submissions and emails a weekly milestone report to project leads by Tuesday 11:00 P.M. Durham before the next milestone meeting.
6. Derrick (host) and the UG research team be ready to present weekly milestones; Luyao (host) and other project leads be ready to advise moving forward and answer questions at the next meeting.
7. Both the project leads, the graduate mentor, and UG researchers react actively to AMA interviews.

Appendix: Weekly Milestone Resources

1. Project Briefings: Milestones, Final Deliverables, and Other Contributions

1) **Innovate** Deploy DeFi Apps (Canister) on the Internet Computer with the key features of specified Defi Apps (Smart Contract) that exist on the Ethereum Blockchain.

      ☐ <u>Final deliverables</u>: video recordings and slides of prototype demonstrations
      ☐ <u>Milestone deliverables</u>: video recordings and slides of step-by-step developing instructions

2) **Research**: Conduct research to compare the performance of the DeFi Apps newly developed on the Internet Computer and its analogy on the Ethereum Blockchain

      ☐ <u>Final deliverables:</u> research reports and research proposals seeking support for a continuing project

      ☐ <u>Milestone deliverables:</u> presentations and reports that cover the following five facets:

- research background (literature review)
- research questions (essays on why important and why not studied before)
- research methods (documents of modeling, simulating, experimenting, or analyzing methods)
- results (reports on pivot results)
- intellectual merits and practical impacts (arguments on contribution to the literature of economics and computer science and to real-world practices.)

3) Other contributions:

      ☐ AMA with DFINITY engineers
      ☐ Open Education Resource Publications: innovate/research on the Internet Computer
      ☐ Presentation at SciEcon Seminars/Symposiums
      ☐ Potential re-appointment on continuing projects and co-authorship on publications

Note: the research must be asking fundamental questions of relevancy to both Economist and Computer Scientist at the frontiers

<u>Questions:</u>
1. To Kartik and Fan: what questions are interesting to Computer Scientists? Which aspects are important to research? What features to compare? How?
2. To Luyao and Yulin: what questions are interesting to Economists? Which aspects are important to research? What features to compare? How?

2. Divisions of Labor

Project A

<u>Specified DeFi Apps</u>: Liquity
Economic Documents: https://docs.liquity.org/faq/general

Technical Resources: https://docs.liquity.org/documentation/resources
Staffing:
Senior Researcher: Urjit Banerjee
Junior Researcher: Oum Lahade
Research Support: William Zhao and Elliot Ha

Project B

Specified DeFi Apps: Compound and Ave
Compound: https://compound.finance/
Aave: https://aave.com/

Staffing:
Senior Researcher: Dylan Paul
Junior Researcher: Malika Rawal
Research Support: Tianyu Wu and Saad Lahrichi

Questions to Yulin: Key features that you recommend starting with for both projects?
Notes:
For Project A: No dividend tokens, i.e. LQTY, for the first version; Replace Ether by ICP and replace LUSD by SDR
- o Users could pledge ICP tokens as collateral and borrow SDR tokens
- o SDR tokens are pegged to Cycles (stability mechanism needs to be worked out)
- o Users could withdraw their ICP tokens by paying back their debts
- o No dividend tokens, i.e. LQTY, for the first version

For Project B: start with a single asset Cycle and a single collateral ICP
- o Lenders could deposit Cycle tokens and earn interest
- o Borrowers could pledge ICP tokens as collateral and borrow Cycle tokens
- o If the collateral ratio (=value of ICP/value of the debt) falls below 110%, the ICP collateral is automatically converted to Cycles to pay back their loans

- Both teams start with replication and could innovate later by adding more features to their products
- The two projects could interact at some point, e.g. users could deposit in DB2 the SDR tokens borrowed from DB1

3. Weekly Milestones

Week 1

Innovate:

☐   An Absolute Beginner's Guide for Innovate on Internet Computer:
Step-by-step instruction/demonstration <u>slides</u> submitted in Sakai and videos recorded and uploaded to <u>duke Wapwire library</u>. (Specify the operating system and version for your instructions: Mac/Windows/Linux)
- ✧ Set up the development environment
- ✧ Prepare the building blocks: ICP tokens and cycles
- ✧ Leverage the toolbox: DFINITY Canister SDK
- ✧ Deploy the first application
- ✧ Share how the developer experience connects to or differs from that on a different platform such as Ethereum Blockchain, Webservers, etc.
- ✧ Share where you get stuck, how you remove obstacles and tricks for fast progress.

    References: <u>https://sdk.dfinity.org/docs/quickstart/quickstart-intro.html</u>
    <u>Hint: Install Linux subsystem and Ubuntu for windows</u> <u>tutorial</u>

Research:

☐ Literature Review for Economist, Computer Scientist, and Practitioners submitted in Sakai:
- ✧ Literature review for DeFi in general and your specified application in particular.
- ✧ Reference includes white papers, industry reports, websites, medium articles, conference papers, data, GitHub, third-party evaluations, etc.
- ✧ Literature review for your specified application should answer the following questions:
  Motivation: What problem does the specified DeFi App intend to solve?
  Methods and Results: How does it solve the problem? What are the key mechanisms? Is the problem solved?
  Business Models: How does it work to create business/social value for stakeholders?
- ✧ Please include both in-text citation and bibliographies in <u>Chicago author-date</u> style. (Hint: <u>https://www.mybib.com/</u>)

Week 2:

Innovate:

☐ The pipeline, potential obstacles, and weekly milestone plan to deploy the specified application on the Internet Computer in four weeks: The pipeline should be able to complete the deployment with the user experience of key features.
- ✧ Plan ahead: You must conduct tests to envision potential obstacles

- ✧ The weekly plan should include
  - ◆ Plan to acquire necessary resources
  - ◆ Expert to consult for advice
  - ◆ Expected obstacles and solutions
- ✧ Polish Week 1 milestones
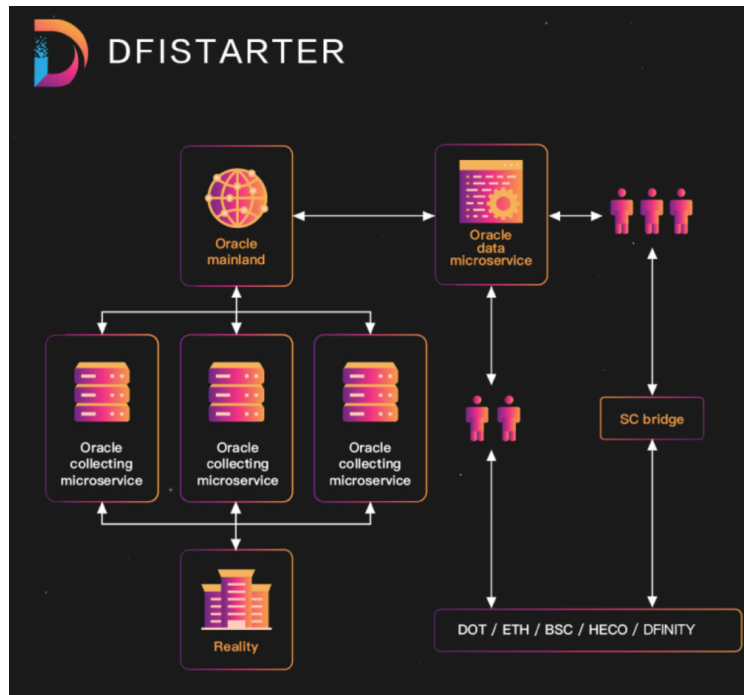- ✧ Integrate with the polished Week 1 milestone and submit to Google Slides here.

Research:

- ☐ Essay on Research Question:
  - ✧ Identify a relevant research question that is interesting to both Computer scientists, economists, and practitioners.
  - ✧ Elaborate on the importance and originality of the research question.
  - ✧ Please include both in-text citation and bibliographies in Chicago author-date style. (Hint: https://www.mybib.com/) (must consist of literature from both Econ and Computer Science) Please search literature in Google Scholar and Duke Libraries.
  - ✧ Polish Week 1 Milestones
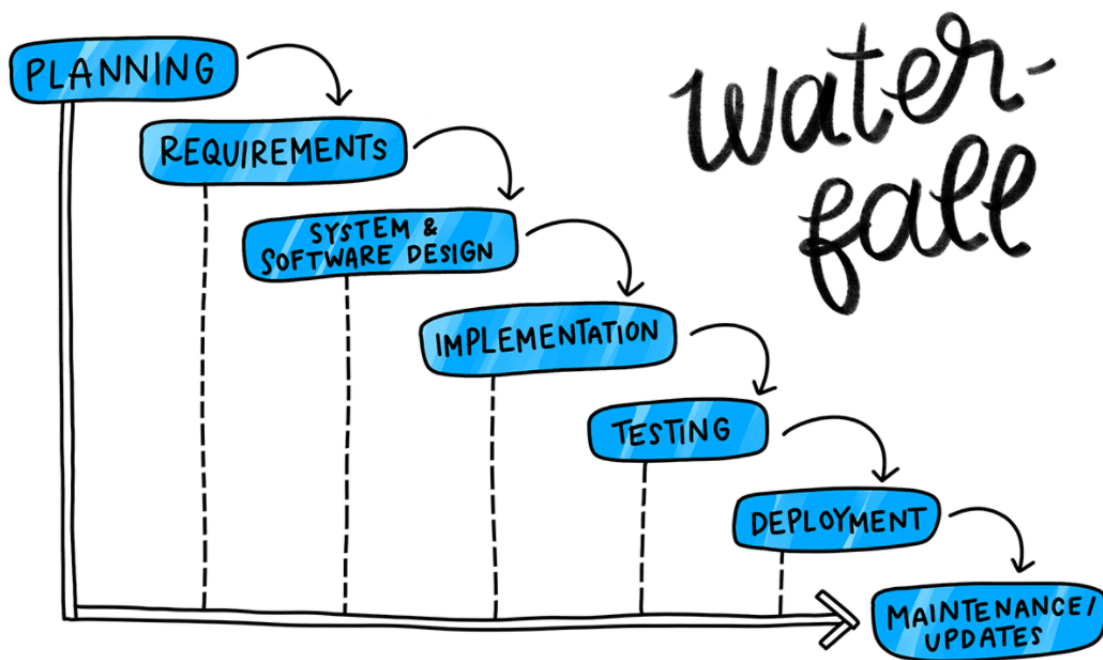 - ✧ Integrate with the polished Week 1 milestone and submit to Google Doc here.

Week 3:

Innovate:

- ☐ Software development plan (Build on your Week 2 Milestones) (references: [1], [2], [3], [4])
  - ☐ software architecture (Lucid chart with explanations)
    - ☐ Which functionality is chosen to solve this problem?
    - ☐ What will be the final user interface and experience?

- ☐ development tools (e.g. certain SDKs)
- ☐ development methodologies in the pipelines
  - ☐ Which tasks need to be formed to develop the described functionality?
  - ☐ What is the order of the feature development?
- ☐ programming languages
- ☐ Testing: What quality metrics will define the efficiency of the project and the quality of the product?

☐ An Absolute Beginner's Guide for Innovate on Internet Computer
  ☐ Deploy hello world App (Week 2 Milestone Slides, including the URL to Wapwire instruction video 1)
  ☐ Prototype demonstration 1: Deploy the interactive canisters (New Slides, including the URL to Wapwire instruction video 2)
☐ Submit both parts in Google slides (one compiled one) to the Google Drive folder here. Please upload both instruction videos onto duke Wapwire library and include the URL in the slides.

Note: DeFi projects on the Intenet Computer:
1. https://icpswap.com/
2. https://tacen.com/
3. https://app.sailfish.app/
4. https://waterslide.app/
5. https://dfistarter.io/
6. https://dfinance.ai/
7. https://www.enso.finance/

Research:

☐ Please read how to write both in Economics and Computer Science. Write a one-paragraph (100-word limit) for how to write in Economics, one paragraph

(100-word limit) for how to write in Computer Science, and one paragraph for comparison (100 world limit).

- [ ] Research proposal with:
  - ✧ The research question (Polish Week 2 Milestones)
  - ✧ The literature review (Polish Week 1 Milestones)
  - ✧ The Methodology (New part: e.g. modeling, simulating, experimenting, analyzing)
    - ◆ Is your method scientific?
    - ◆ Is your method possible to execute?
- [ ] Submit both the reading reflection and the research proposal in Google docs to the Google Drive folder here.

Week 4:

Innovate:

- [ ] Software development plan (Build on your Week 3 Milestones) (references: [1], [2], [3], [4])
  - [ ] software architecture (Lucid chart with explanations)
    - [ ] Which functionality is chosen to solve this problem?
    - [ ] What will be the final user interface and experience?
  - [ ] development tools (e.g. certain SDKs)
  - [ ] development methodologies in the pipelines
    - [ ] Which tasks need to be formed to develop the described functionality?
    - [ ] What is the order of the feature development?
  - [ ] programming languages
  - [ ] Testing: What quality metrics will define the efficiency of the project and the quality of the product?

- [ ] An Absolute Beginner's Guide for Innovate on Internet Computer
  - [ ] Deploy hello world App (Week 2 Milestone Slides, including the URL to Wapwire instruction video 1)
  - [ ] Prototype demonstration 1: Deploy the interactive canisters Week 3 Milestone Slides, including the URL to Wapwire instruction video 2)
  - [ ] Prototype demonstration 2: Add one more feature and compare between at least two different specifications (New Slides, including the URL to Wapwire instruction video 2)
- [ ] Submit both parts in Google slides (one compiled one) to the Google Drive folder here. Please upload both instruction videos onto duke Wapwire library and include the URL in the slides.

Research:

☐ Research proposal with:
- ✧ The literature review (Polish Week 1 Milestones)
- ✧ The research question (Polish Week 2 Milestones)
- ✧ The methodology (Polish Week 3 Milestones)
- ✧ The potential contribution to the literature (some readings for your reference)
  - ◆ Draw a lucid chart to demonstrate the contribution map of existing literature
  - ◆ Explain in 100-wold limit your new contributions
  - ◆ Elaborate how your contribution similar to or different from existing literature.
- ✧ Submit both the reading reflection and the research proposal in Google docs to the Google Drive folder here.

Week 5:

Innovate:

☐ DeFi Apps Pitch Deck

    ☐ Business and Social Value:

        ☐ The most relevant existing DeFi Apps and their Problem

        ☐ The features that your DeFi Apps inherit from the existing DeFi Apps

        ☐ The features that your DeFi Apps differ from the existing DeFi Apps that solves their problem

        ☐ The crucial technical infrastructure on Internet computers allows you to solve this problem that's not possible to be solved before for deployment on other blockchains.

    ☐ Software development plan (polish your Week 4 milestone)

References:

https://kingdefi.io/assets/files/PitchDeck.pdf

https://octopus.exchange/docs/Octopus_Pitch_Deck.pdf

https://pera.finance/info/PeraFinanceBusinessDeck.pdf

https://polkatrail.com/assets/pdf/deck.pdf

https://www.coindesk.com/consensys-pitch-deck-forecasts-100-million-burn-rate-for-2019

    ☐ An Absolute Beginner's Guide for Innovate on Internet Computer

        ☐ Deploy hello world App (Week 2 Milestone Slides, including the URL to Wapwire instruction video 1)

- ☐ Prototype demonstration 1: Deploy the interactive canisters Week 3 Milestone Slides, including the URL to Wapwire instruction video 2)
- ☐ Prototype demonstration 2: Add one more feature and compare between at least two different specifications (New Slides, including the URL to Wapwire instruction video 3)
- ☐ Prototype demonstration 3: Further advancement that is aligned with your Pitch Deck. (New Slides, including the URL to Wapwire instruction Video 4)
- ☐ Submit both parts in Google slides (one compiled one) to the Google Drive folder here. Please upload both instruction videos onto duke Wapwire library and include the URL in the slides.

Research:

- ☐ Research proposal with:
  - ✧ The literature review (Polish Week 1 Milestones)
  - ✧ The research question (Polish Week 2 Milestones)
  - ✧ The methodology (Polish Week 3 Milestones)
  - ✧ The potential contribution to the literature (Polish Week 4 Milestones)
    - ◆ Draw a lucid chart to demonstrate the contribution map of existing literature
    - ◆ Explain in 100-word limit your new contributions
    - ◆ Elaborate how your contribution is similar to or different from existing literature.
  - ✧ Pilot results: create an illustrative case study for your research as pilot results and infer potential results for the general study.
  - ✧ Submit the research proposal in Google docs to the Google Drive folder here.

Week 6:

Innovate:

- ☐ Submit a complete deck (presentation) in Google Slides to the Google Drive folder here **(Each Deck with project name and Team Introduction: Your headshots and self-introductions)**

Dylan Paul: ICy
Rawal, Malika: ICy
Oum Lahade: Waterpark
Rhys Banerjee: Waterpark

☐ Upload a prototype demonstration as a complementary presentation with your deck [duke Wapwire library](#) and include the URL in the slides.

[Research](#)

Submit a complete research proposal (an essay) in Google Docs to the Google Drive folder [here](#)

Dylan Paul:
Research question: Reverse gas fee model as a solution to scalability/efficiency/user or developer experience?
Research Method: Field Experiment
Critical: Narrow down what you want to compare for and the metrics (data) you will be comparing. (e.g. scalability: maximum transaction in one minutes?) What's the rationale?

Rawal, Malika:

Research question: How Chain and Key Technology provides new possibilities to on-chain governance (Neural Network System: e.g. Liquid Democracy)?
Research Method: ?
Critical: how to compare the performance? Narrow down one performance to compare.

Rhys Banerjee:
Research question: Orthogonal persistence as a decentralized storage solution?
Research Method: Field Experiment
Critical: how can the comparison be ceteris paribus? Can you compare while controlling other factors other than orthogonal persistence?

Oum Lahade:
Research question: Orthogonal persistence as a solution to scalability (storage cost)?
Research Method: Field Experiment to compare storage cost: especially to compare the storage cost trend when more users are added.
Critical: describe how to collect the storage cost data and how to compare the statistics scientifically?

[Proposal Rubrics Session 1 and 2](#)

Summer Research Fellowship Proposals - Writing Rubric

Section 1. Project Information:
• Short project title
 Short enough to be concise, long enough to be descriptive.

• Abstract
Single paragraph, no more than 250 words, no references or citations. The

abstract should concisely address the what, how, and why of your project. An abstract should be clear enough to draw the reader into the proposal.

• Project specifics: dates, location, total cost

Section 2.   Project Proposal:
A narrative of no more than 3 pages organized into:

• Background and General aims/long term objectives
What is the overall goal of this research? What are the 'big questions' in your discipline that you expect to address? How does your proposed research relate to the work of others in this field? How is it a novel? How is it relevant?

• Specific aims/short term objectives and Methods
What are the specific research questions that you will ask this summer, and what methods will you use to address them? How do they relate to your general aims?

List your individual aims. For each aim, briefly describe a testable hypothesis or achievable goal within your time frame of research. Explain your study design, feasibility, and details of how you will collect and analyze data. Refer to any resources, skills, or background that you will bring to that aim.

• References cited.

Week 7:

Innovate:

☐ Polish your deck and submit in Google Slides to the Google Drive folder here
☐ *draw a mind-map/flowchart using whimsical wherever applicable to guarantee coherent logic.*
☐ *List the (human/physical) resources you need for production*
    ☐ *Human resources: e.g. industry and academia advisors, engineers, investors, editors, outreacher, designer, videomaker etc...*
    ☐ *Physical resources: e.g. cycles, ICPs, virtual machine with configuration (e.g. we can request for Duke VM)*

Dylan Paul: ICy
Rawal, Malika: ICy
Oum Lahade: Waterpark
Rhys Banerjee: Waterpark

☐ Upload an updated prototype demonstration as a complementary presentation to your deck duke Wapwire library and include the URL in the slides.

Research

Submit a revised and updated research proposal, including **one page limit project summary** and **8-page limit project description (**refer to the NSF proposal sample here**)** in Google Docs to the Google Drive folder here. You can refer to the two research agenda/directions here. Refer to articles here about how to write different types of research.

☐ Basic writing problem: professional titles, abstracts, citations, and content for each part.
 ☐ Schedule at least one appointment with the Duke Writing Center
 ☐ Refers to resources here
 ☐ Check with Grammarly
 ☐ Check with AJE's Free Grammar Check for Scientists and Academics
☐ A crystal clear logic flow from background/motivation to research question to methodology to potential results and contributions (intellectual merits and practical impacts)
 ☐ *draw a mind-map/flowchart using whimsical wherever applicable to guarantee coherent logic.*
☐ The basis and rationale of your agreements
 ☐ Distinguish your own claim/hypothesis/argument from citations for existing literature or documents
 ☐ Find at least three groups of literature that are similar to yours from one aspect but differ in others.
 ☐ Discuss similarity of your own proposal to existing literature as background
 ☐ Discuss how your proposal differs from existing literature as novelty
 ☐ Discuss the rationale that your proposal can overcome the limitations of existing literature.
 ☐ Makes tables and charts for comparisons. Please title and number all tables and figures. And refer to each illustration in your text as "Figure 1 shows...Table 1 represents."
 ☐ For metrics that you will use to measure performance, please give existing data (type, unit, frequency) as a reference.

AMA

☐ Draft your question list for DFINITY Engineer AMA.

    ☐ At the top of the questions list, please provide a brief self-introduction of yourself: including your headshot, 100-word self-introduction, and your experience in our current Duke CS+ program.

    ☐ For each question, please first state the background/motivation of your question and the area of expertise that might be able to address your question.

    ☐ For each question, please also first refer to the DFINITY documents

☐ Please submit in Google Doc to the Google Folder here

Week 8:

Code:

Compile your code in a project folder using VS code and push directly to GitHub repo below:

Note: I have sent a GitHub invitation to your Duke email.

Note: how to open the project folder on VS code from Ubuntu

Duke-CS-Plus-IC/ICy

Duke-CS-Plus-IC/Waterpark

Please write a readme file for your project:

Instructions

References:

Building a Multiplayer Reversi Game on Internet Computer

https://ninegua.github.io/reversi/

https://youtu.be/GzkRsbqPaA0

https://github.com/DFINITY-Education/blockchain-and-cryptocurrency

https://github.com/DFINITY-Education/protocol-design

https://github.com/DFINITY-Education/distributed-systems

https://github.com/DFINITY-Education/governance

https://github.com/DFINITY-Education/web-development

https://github.com/DFINITY-Education/programming-languages

https://github.com/DFINITY-Education/protocol-design

https://github.com/DFINITY-Education/data-structures

https://github.com/DFINITY-Education/docs

Interview:

Questions:
1. Self-Introduction?
2. Research at Duke CS+? (highlight your research proposal)
3. Innovate at Duke CS+? (highlight your Deck)
4. Questions for DFINITY Engineers?
5. How does Duke CS+ change your view of the blockchain economy?

Duke CS+:ICy Interview with Malika and Dylan
July 28th 10:00 -10:30 A.M. Durham Time
https://duke.zoom.com.cn/j/91816193948

| Dylan Paul | Full-time Researcher | dhp14@duke.edu |
| Malika Rawal | Full-time Researcher | malika.rawal@duke.edu |

Duke CS+: Waterpark Interview with Urjit and Oum
July 28th 10:30-11:00 A.M. Durham Time
https://duke.zoom.com.cn/j/97312601560

| Urjit Banerjee | Full-time Researcher | urjit.banerjee@duke.edu |
| Oum Lahade | Full-time Researcher | oum.lahade@duke.edu |

We will produce a documentary for the interview and podcast on Duke University Website for educational purposes.

Deck and Research Proposal:

Further polish your Deck, Research Proposal (summary and description), and AMA document. Then submit the Google Slides and Doc here. See the following checklist for all action items.

☐ Provide comments and suggestion for the other three UG researcher's Deck, Research proposal and AMA document (in the suggesting mode of Google Doc/slides)

ICy Deck
Waterpark Deck

Dylan Paul
Research Proposal summary
Research Proposal description
AMA

Malika Rawa
[AMA](#)
Research Proposal summary and description not found

Oum Lahade

[Research Proposal summary](#)
Research Proposal description not Found
[AMA](#)

Rhys Banerjee

[Research Proposal summary](#)

[Research Proposal description](#)
[AMA](#)

- ☐ Address all comments from the Professors
- ☐ For your research proposal, draw a *whimsical* mind map to demonstrate the potential contribution of the proposed project to both academic literature and industry practices.
- ☐ For AMA questions, please add reference in hyperlink to the documents that you have already gone over. (e.g. [BigMap](#))
- ☐ Schedule at least one appointment with [the Duke Writing Center](#)
- ☐ Refers to resources [here](#)
- ☐ Check with [Grammarly](#)
- ☐ Check with [AJE's Free Grammar Check for Scientists and Academics](#)
- ☐ Add budget session to both your proposal and your deck

https://www.enkel.ca/blog/accounting/prepare-budget-grant-proposal/

References:

Four Internet Computer Start-up Tutorial Videos:
https://drive.google.com/drive/folders/1PDaBXAJuLq0VgYp0KvCCEndpJjtxrSIm?usp=sharing
https://dfinity.org/developers/
Internet Computer Association Course Release:https://internetcomputer.org/education
Focus: https://github.com/DFINITY-Education/blockchain-and-cryptocurrency
More videos on the DFINITY YouTube channel:
https://www.youtube.com/c/DFINITY/videos
Join the Internet Computer Forum: https://forum.dfinity.org/categories
GitHub:
https://github.com/dfinity/ic
https://github.com/dfnfan/awesome-DFINITY
https://github.com/dfinity/awesome-dfinity
Canisters Developed on the Internet Computer:

Decentralized Tiktok: https://github.com/dfinity/cancan
Decentralized LinkedIn: https://github.com/dfinity/linkedup
Decentralized Whatsapp: https://www.youtube.com/watch?v=PjMIY2w480I
Decentralized Reddit

Blockchain Data:

CoinmarketCap	https://coinmarketcap.com/tokens/
Coinmetrics	https://coinmetrics.io/
Coingecko	https://www.coingecko.com/en
Etherscan	https://cn.etherscan.com/
Bitfinex	https://www.bitfinex.com/
Messari	https://messari.io/
Glassnode	https://glassnode.com/