

## Evan's Rules: Sana.MIT.edu

One of the significant challenges when developing mobile health solutions is that connectivity over mobile data networks is frequently poor or intermittent. In an attempt to address this problem, the connection between the Sana mobile clients and middleware allow for uploading large binary files from the mobile client as smaller chunks for reassembly in the middleware.

The main purpose of this project is to research, to propose, and to design methods which will optimize transmission over sparse networks. Typical data transmissions from the mobile clients to the middleware will be on the order of several megabytes in size. However, there are some use cases where the size of data may be larger.

Yunkee Lee, Zitian Wang, Tianyu Yu,  
Ziyi Zhao  
<http://uwaterloo.ca>

### Idea

<i>Respects Public Welfare</i>	<i>Appropriate Soln. Strategy</i>
<i>Strategic Positioning</i>	<i>Sufficient Technical Challenge</i>

P.E.O. Code of Ethics 77(2)i states that the practitioner's duty to public welfare is paramount. Projects that are a detriment to public welfare will fail.

### \* Results Target (FOSS Contribution Category)

*Real World:* **SANA**  
*Pitches:* CUSEC, Velocity, Y-Combinator, Jolt, *other*  
*Competitions:* OEC, IDeA, *other*  
*Awards:* Yelp, Sedra, Esch, Baylis, Autodesk, 90 Second, *other*

### \* ATE Knowledge

Course	Term	Student(s)	Applied
CS/ECE 458	4A	Team	
SE 465	3A	Team	
ECE 358	4A	Team	
CS 454	4B	Evan	

An ATE plan should be made by the end of 390. Some ATE Knowledge should be applied by the end of 490.

### \* Requirements & Specification

	Identified	Satisfied	Note
Functionality	X		
<del>Market Differentiation</del>			
Correctness	X		
Computational Complexity			
Performance	X		
<del>Privacy</del>			
Security			
Usability	X		
Dependability	X		

Additions and removals from this list are permitted. Projects are unique. Most relevant specifications should be identified by the end of 390 or early in 490. Most functional requirements should be satisfied by the end of 490. Most non-functional requirements should be satisfied by Symposium Day. Correctness specifications might include project-specific invariants, the ACID properties (Atomicity, Consistency, Isolation, Durability), the CAP theorem (Consistency *vs.* Availability *vs.* Partitioning), data synchronization, concurrency, *etc.*

### \* Prototype Functionality

end of 390: research documentation presented to SANA stakeholders for review

490 midterm: exploratory prototype

490 final: completed prototype + initial integration begins  
 symposium day: patch ready for submission

Functionality Guideline:

- end of 390: exploratory prototypes (10%)
- 490 midterm: MVP (50%)
- 490 final: v1
- Symposium Day: v2

## ❄ Productivity Metrics

Client Meetings	Development
Paper Prototypes	· Commits
Exploratory Prototypes	· Merge Requests
Research Literature Report	· Issues Open / Closed
Formal Logic Analysis	Lines Of Code CLOC - 379
Tests	· Prototype
· Manual	· Experiments
· Machine Generated	· Build scripts etc.

Project-specific metrics, other than the ones listed here, are also welcome.

Lines of code should be measured with CLOC or SLOccount. It should include anything you wrote by hand that is processed by machine, including experimental code and test inputs. It should exclude third-party libraries and machine-generated code.

## Plan

Ambition	low / normal / high	Challenges	inaccurate / accurate
Detail	insufficient / adequate	Mitigations	inadequate / realistic

Plan might include marketing, if the results rubric is the number of users.

## Design & Architecture

Explanation	<input type="checkbox"/> clear	<input type="checkbox"/> complete	<input type="checkbox"/> correct	<input type="checkbox"/> concise
Fitness for Purpose	<input type="checkbox"/> reasonable	<input type="checkbox"/> congruent with spec	<input type="checkbox"/> normal	
Fitness for Future	<input type="checkbox"/> variability	<input type="checkbox"/> modularity	<input type="checkbox"/> assumptions	

490 Final + Symposium Day

See Peer Design Review exercise in Handbook for details. *Normal* means follows normal engineering practice in well-known problem domains.

## Responses

Peer Code Review	ignored / incorporated / refuted
Peer Usability Review	ignored / incorporated / refuted
Customer Feedback	ignored / incorporated / refuted
Instructor Feedback	ignored / incorporated / refuted

490 Final + Symposium Day

## Results (FOSS Contribution Category)

The goal of contributing to an existing free/open-source software project is usually to have patch(es) accepted by the main developers. The referee should moderate this rubric based on the technical difficulty of the patches (brief note please).

Grade	Criteria
A+	Patches accepted, positive mentions in press/release.
A	Patches accepted.
A-	Patches accepted but then reverted due to bug/issue.
B	Patches submitted and reviewed.
B-	Patches submitted.
C	Patch appears to work on student computers.
F	Patch is vapour.

Symposium Day

These rubrics are a guideline. The referee is invited to use their own professional judgment, and is invited to deviate from these rubrics where it makes sense to do so. Each project is unique and faces a unique set of challenges and circumstances. Please briefly explain significant variations.