CS314 Software Engineering New Intern Orientation

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TripCo - Welcome to your Internship!

A mobile web application development startup that quickly produces reliable, high quality solutions using Agile software engineering practices.

CEO / CTO / Manager / Product Owner / Instructor
Dave Matthews

Directors / Mentors / Teaching Assistants
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Be an Agile organization

Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

individuals and interactions	over	processes and tools,
working software	over	comprehensive documentation,
customer collaboration	over	contract negotiation,
responding to change	over	following a plan.

That is, while there is value in the items on the right, we value the items on the left more.

http://agilemanifesto.org/

Focus on Software Engineering

- The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software; that is, the application of engineering to software.

  ISO/IEC/IEEE 24765:2010 Systems and Software Engineering Vocabulary

Build process maturity at level 3

Maturity	Organization	Project	Engineering	Support
5	• Organizational Performance Management			• Causal Analysis and Resolution
4	• Organizational Process Performance	• Quantitative Project Management		
3	• *Organizational Process Definition* • *Organizational Process Focus* • *Organizational Training*	• *Integrated Project Management* • *Risk Management*	• **Requirements Development** • **Technical Solution** • **Product Integration** • **Verification** • **Validation**	• *Decision Analysis and Resolution*
2		• **Requirements Management** • **Project Planning** • **Project Monitoring and Control** • *Supplier Agreement Management*		• **Configuration Management** • **Process and Product Quality Assurance** • *Measurement and Analysis*

http://cmmiinstitute.com/sites/default/files/documents/CMMI-DEV_Quick_Ref-2014.pdf

Internship Plan – 15 weeks

Sprint	Processes	Tools	Technology	TripCo Epics
1	• **Configuration Management** • **Continuous Integration** • **Project Management** • **Scrum, Planning Poker**	• **GitHub, Maven,** • **Travis-CI** • **ZenHub,** • **CodePen**	• **Bootstrap 4** • **HTML** • **JavaScript** • **ReactJS**	• **Make a mobile resume** • **Calculate geographic distances**
2	• **Test Driven Development** • **Black Box Testing**	• **Google style guide** • **IntelliJ** • **WebStorm**	• **Java Spark** • **REST API/HTTP** • **JSON, SVG**	• **Accept destination file** • **Show map and itinerary**
3	• **Clean Code** • **Code Coverage** • **White Box Testing**	• **Code Climate** • **Emma, Jacoco, …**	• **SQL** • **MariaDB**	• **Plan shorter trips** • **Modify destination list** • **Show useful information**
4	• **Code Smells** • **Refactoring**		• **KML**	• **Plan shorter trips** • **Add more information** • **Map operations**
5	• **Peer Reviews** • **Inspections** • **Metrics**		• **Concurrency**	• **Plan shorter trips** • **Plan trips faster** • **Finalize your resume**

Sprint 1 - New Intern Orientation

- Focus on Level 2 software engineering processes
- Introduction to processes, supporting tools, and some technologies used in our solutions
- Teambuilding exercises
- Build a web résumé
- Build a distance calculator web application
- Demonstrate your work to staff

Team Grade for Sprints

- Process (50 pts)
  - Epics, tasks
  - Commits, pull requests
  - Build success
  - Tests, coverage
  - Technical debt ratio
- Solution (50 pts)
  - Deployment (to server)
  - Release (GitHub)
  - Report (GitHub)
  - Demonstration (in class)

Individual Grades

- Sprints - 50%
  - each sprint - 10%
  - individual score = team score * %contribution
- Exams - 35%
  - Final - 20%
  - Midterm - 15%
- Activities - 15%
- There is no grace period or LATE. It is done or it is not.

Online Résumé

Education

Bachelor of Science, Computer Science, 20xx, GPA

- **Completed Scrum-based team project that created a mobile, single page web, trip planning application interacting through REST APIs with a SQL database and optimization tools.**

Skills

- **Scrum, Test Driven Development, Configuration Management, Continuous Integration, Unit and Coverage Testing, Clean Code, Inspections**
- **GitHub, Maven, TravisCI, Zenhub, JUnit, Emma, Code Climate**
- Java, C++, C, Eclipse, **JavaScript, CodePen, IntelliJ, WebStorm**
- **Bootstrap 4, ReactJS, Java Spark, MariaDB, SQL, JSON, SVG, KML**

Other things you should learn…

- How to manage time
- How to solve problems
- How to learn
- How to ask for help
- How to help others
- How to lead
- How to follow

… in a team

Expectations

- Lecture attendance is REQUIRED.
  - No textbook!
  - Team meetings in class each lecture.
- Sprints should be done incrementally 6-9 hours / week.
  - Don't procrastinate - no big bang.
  - Teamwork is the key.
- Make visible contributions (GitHub, Zenhub, ...)
- Talk to me early if you or your team is having a problem.
- Tell me about university activities, life events, documented illnesses and disabilities, etc. that affect ability to contribute.

Canvas - due tomorrow!

- Identify pairs
- Submit your GitHub username
- Submit your personality type
- Submit your skills survey