

Software Product Design and Development I

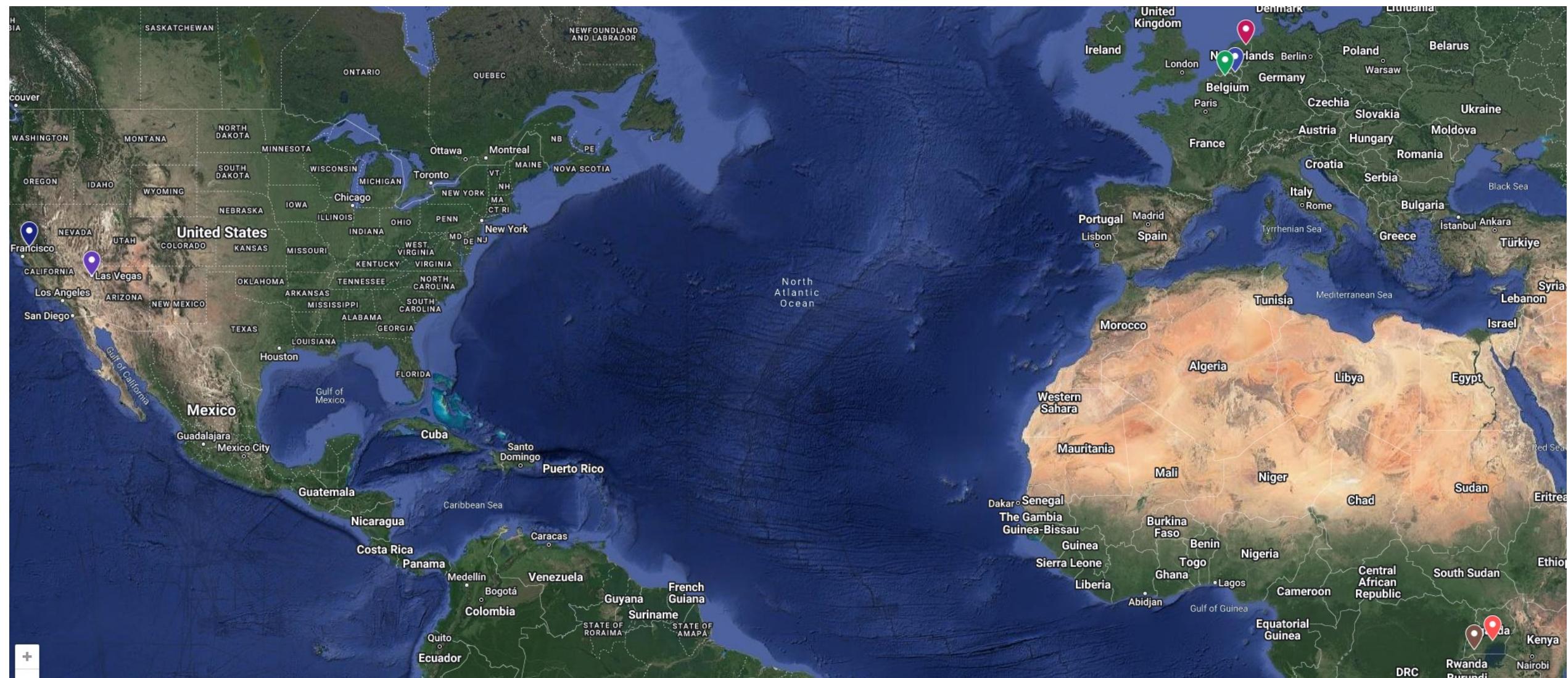
Dr. John Businge

John.businge@unlv.edu

GA: Shizhao Wang

wangs12@unlv.nevada.edu

My Journey to UNLV



Administration

- Go to - <https://johnxu21.github.io/teaching/CS472-Spring2023/>

CSC 472/672 AND OTHER COURSES

- Prerequisites:
 - CS 326 - Programming Languages, Concepts and Implementation
 - CS 370 - Operating Systems
- Follow-up Class - CSC 473/673 – Next Fall – Optional class



1ST
TIME

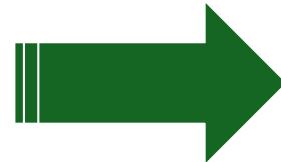
Software Product Design and Development I

High Quality Software

Flexible

Reusable

Maintainable



Collaboratively

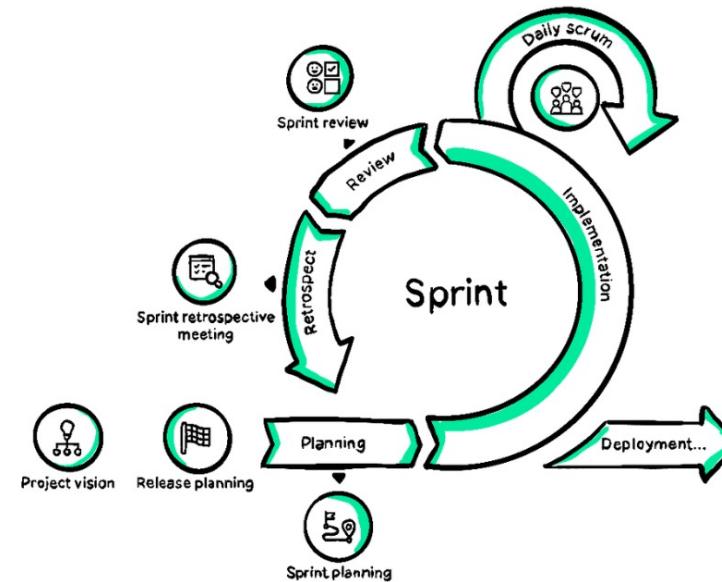
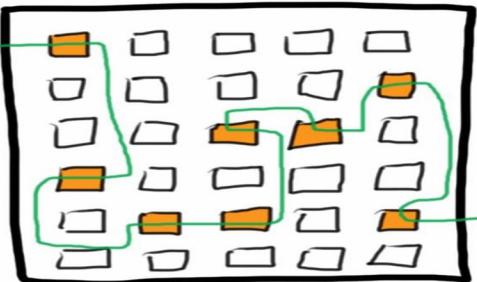
Finding our way
through bad code



Agile Methodology



Finding our way
through clean code



apache / kafka Public

Watch 1.1k Fork 11.3k Star 21.5k

Pull requests 953 Open ✓ 11,016 Closed

ijuma KAFKA-1418: Support key updates with TLS 1.3 (#11966) ...

R: Adding kafka-storage.bat file (similar to kafka-storage.sh) fo... 16 days ago

R: Fix class comparison in `AlterConfigPolicy.RequestMetadata... 8 days ago

1.7k

Contributors 884 + 873 contributors

MINOR: Add missing licenses and update versions in LICENSE-binary... 7 months ago

Java 74.2% Scala 22.7%

Python 2.7% Shell 0.2%

Roff 0.1% Batchfile 0.1%

MINOR: Add missing licenses and update versions in LICENSE-binary... 7 months ago

Apache Kafka is a distributed event store and stream-processing platform

UNLV | HOWARD R. HUGHES
College of
ENGINEERING
Spring 2023
Senior Design Competition

Welcome to Senior Design, the capstone project of your engineering education. Civil Engineering, Computer Science, Electrical & Computer Engineering, Entertainment Engineering & Design and Mechanical Engineering students are expected to participate in this program. The class and the project you complete will receive a separate grade from your professor. The Senior Design Competition is an opportunity for you to compete with, and against, other engineering students for recognition and prizes!



MONETARY AWARDS

- **Department Awards:**
 - 1st: \$300 per student team member**
 - 2nd: \$150 per student team member**
- **Interdisciplinary:**
\$350 per student team member**
- **Commercial Potential:**
1st: \$325 per student team member*
- **Sustainability:**
\$225 per student team member*
- **Popular Choice:**
\$125 per student team member*
- **Team Congeniality:**
\$100 per student team member*
- **Grand Prize:**
\$500 per student team member

*Can be won in addition to department awards.
**If the category only has one team competing, then the team score must be equivalent to other department scores to receive a prize.

IMPORTANT DATES

- ♦ **2.3.23** - Data contact sheet completed
- ♦ **2.7.23** - Abstracts due to Molly Marks **No Exceptions**
- ♦ **2.20.23** - Final day to drop from the competition!
- ♦ **2.21.23** - Last Day to email Molly Marks to schedule a team photo
- ♦ **3.1.23** - Email Molly Marks project special needs
- ♦ **3.6.23** - Professional Team Photos 8AM - 1PM
- ♦ **3.7.23** - Professional Team Photos 12PM - 5PM
- ♦ **3.15.23** - RSVP for Mandatory Poster Workshop to molly.marks@unlv.edu
- ♦ **3.17.23** - Presentation time will be emailed
- ♦ **3.29.23** - Mandatory Poster Workshop 2:30-3:30pm
- ♦ **4.21.23** - RSVP for awards **MUST SUBMIT TO ATTEND**
- ♦ **5.3.23** - Set up, Thomas & Mack Complex 10am - 5pm
- ♦ **5.4.23** - Competition, arrive NO LATER than 6:45am
- ♦ **5.5.23** - Award Reception, 6pm-9pm, Thomas & Mack Cox Pavilion
- ♦ **5.11.23** - Reimbursement packets due by 4:50pm

AT LEAST HALF OF THE TEAM MUST BE PRESENT OR THE TEAM FORFEITS THE MONETARY AWARD.

**May 4, 2023
8am-6pm**

UNLV | HOWARD R. HUGHES
College of
ENGINEERING
Spring 2023
Senior Design Competition

COMPETITION SET UP DAY: 5.3.23, 10AM-5PM, Thomas & Mack Complex

- ♦ During this time is when students are expected to get their project area set up and ready to go.
- ♦ Building is on lockdown, only allowing access to myself upon departure at 5pm so leaving items over night is a safe option.
- ♦ Each team is provided with (1) 6ft table, linen, chairs and (1) easel. Anything beyond this MUST be requested in email by [3.1.23](#). We do not supply monitors, computers, televisions, dolly's etc.
REQUESTS WILL ONLY BE ACCOMODATED IF SUBMITTED BY THE DUE DATE AND IF FEASIBLE WITHIN THE SCOPE OF THE VENUE AND COMPETITION!

COMPETITION DAY: 5.4.23, 8AM-6PM, Thomas & Mack Complex

Arrive **NO LATER** than 7am to Thomas & Mack Complex

- ♦ If chosen for a media interview you will need to arrive between 4:30-5am (we will make sure you agree before choosing you).
- ♦ Business attire is **MANDATORY**... this means dress as though you were meeting with a potential professional employer. If you have questions please contact me.
- ♦ Students will be provided continental breakfast, lunch and an afternoon snack during the day.
- ♦ All team members must be present during the judging process which will be from 8am to 1pm, all other times during the day at least 1 team member must be present.
- ♦ Each team will be allotted 15 minutes for their presentation and 5 minutes for Q&A. Once you have concluded your presentation, please walk away to allow the judges wrap up their score sheets.
- ♦ No serving any food or beverages to those attending the competition.
- ♦ Be respectful of your fellow students and stay for the completion of the competition.

Awards will be given out at the Awards Reception on 5.5.23, 6PM—9PM in the Thomas & Mack Cox Pavilion. Teams forfeit any prize money earned if they are not present. Student and one guest attends the awards dinner at no costs. If you are attending the awards you must complete the RSVP form (link will be emailed by Molly) by 4.21.23. Additional guest tickets can be purchased for \$50.

Questions or comments Contact: Molly Marks, Director of Special Events WHA2-212
molly.marks@unlv.edu 725.225.6136 (cell).





HOWARD R. HUGHES
College of
ENGINEERING
Spring 2023
Senior Design Competition

May 4, 2023
8am-6pm

Welcome to Senior Design, the capstone project of your engineering education. Civil Engineering, Computer Science, Electrical & Computer Engineering, Entertainment Engineering & Design and Mechanical Engineering students are expected to participate in this program. The class and the project you complete will receive a separate grade from your professor. The Senior Design Competition is an opportunity for you to compete with, and against, other engineering students for recognition and prizes!



MONETARY AWARDS

- **Department Awards:**
1st: \$300 per student team member**
2nd: \$150 per student team member**
- **Interdisciplinary:**
\$350 per student team member**
- **Commercial Potential:**
1st: \$325 per student team member*
- **Sustainability:**
\$225 per student team member*
- **Popular Choice:**
\$125 per student team member*
- **Team Congeniality:**
\$100 per student team member*
- **Grand Prize:**
\$500 per student team member

* Can be won in addition to department awards.
** If the category only has one team competing, then the team score must be equivalent to other department scores to receive a prize.

IMPORTANT DATES

- 2.3.23 - Data contact sheet completed
- 2.7.23 - Abstracts due to Molly Marks **No Exceptions**
- 2.20.23 - Final day to drop from the competition!
- 2.21.23 - Last Day to email Molly Marks to schedule a team photo
- 3.1.23 - Email Molly Marks project special needs
- 3.6.23 - Professional Team Photos 8AM - 1PM
- 3.7.23 - Professional Team Photos 12PM - 5PM
- 3.15.23 - RSVP for Mandatory Poster Workshop to molly.marks@unlv.edu
- 3.17.23 - Presentation time will be emailed
- 3.29.23 - Mandatory Poster Workshop 2:30-3:30pm
- 4.21.23 - RSVP for awards **MUST SUBMIT TO ATTEND**
- 5.3.23 - Set up, Thomas & Mack Complex 10am - 5pm
- 5.4.23 - Competition, arrive NO LATER than 6:45am
- 5.5.23 - Award Reception, 6pm-9pm, Thomas & Mack Cox Pavilion
- 5.11.23 - Reimbursement packets due by 4:30pm

AT LEAST HALF OF THE TEAM MUST BE PRESENT OR THE TEAM FORFEITS THE MONETARY AWARD.



HOWARD R. HUGHES
College of
ENGINEERING
Spring 2023
Senior Design Competition

May 4, 2023
8am-6pm

COMPETITION SET UP DAY: 5.3.23, 10AM-5PM, Thomas & Mack Complex

- During this time is when students are expected to get their project area set up and ready to go.
 - Building is on lockdown, only allowing access to myself upon departure at 5pm so leaving items over night is a safe option.
 - Each team is provided with (1) 6ft table, linen, chairs and (1) easel. Anything beyond this MUST be requested in email by [3.7.23](#). We do not supply monitors, computers, televisions, dolly's etc.
- REQUESTS WILL ONLY BE ACCOMMODATED IF SUBMITTED BY THE DUE DATE AND IF FEASIBLE WITHIN THE SCOPE OF THE VENUE AND COMPETITION!**

COMPETITION DAY: 5.4.23, 8AM-6PM, Thomas & Mack Complex

Arrive **NO LATER** than 7am to Thomas & Mack Complex

- If chosen for a media interview you will need to arrive between 4:30-5am (we will make sure you agree before choosing you).
- Business attire is **MANDATORY**... this means dress as though you were meeting with a potential professional employer. If you have questions please contact me.
- Students will be provided continental breakfast, lunch and an afternoon snack during the day.
- All team members must be present during the judging process which will be from 8am to 1pm, all other times during the day at least 1 team member must be present.
- Each team will be allotted 15 minutes for their presentation and 5 minutes for Q&A. Once you have concluded your presentation, please walk away to allow the judges wrap up their score sheets.
- No serving any food or beverages to those attending the competition.
- Be respectful of your fellow students and stay for the completion of the competition.

Awards will be given out at the Awards Reception on 5.5.23, 6PM—9PM in the Thomas & Mack Cox Pavilion. Teams forfeit any prize money earned if they are not present. Student and one guest attends the awards dinner at no costs. If you are attending the awards you must complete the RSVP form (link will be emailed by Molly) by 4.21.23.

Additional guest tickets can be purchased for \$50.

Questions or comments Contact: Molly Marks, Director of Special Events WHA2-212
molly.marks@unlv.edu 725.225.6136 (cell).



High Quality Software

Flexible
Reusable
Maintainable



Collaboratively





Andreas Stefik, Ph.D.

Professor
Computer Science
University of Nevada, Las Vegas
2016 White House Champion of Change
[Curriculum Vitae](#)

CS 472/672: Software Product Design and Development I

Dr. Andreas Stefik
University of Nevada, Las Vegas
Department of Computer Science
Las Vegas, NV 89154-4019

Office TBE B372e
Office Phone: 702-895-3603
Office Fax: 702-895-2639
Email: andreas.stefik@unlv.edu

Web:
<http://web.cs.unlv.edu/stefika/>

Fall 2022

Section 1, Time and Location: M-W 1:00 - 2:15 PM , SEB 1243

Office Hours:
M-W 11:00PM - 12:50 PM

High Quality Software
Flexible
Reusable
Maintainable



Collaboratively



John Businge

Assistant Professor, Computer Science
University of Nevada, Las Vegas
Office: 4245 Science and Engineering Building (SEB)
Telephone (Office): (702)-895-4216

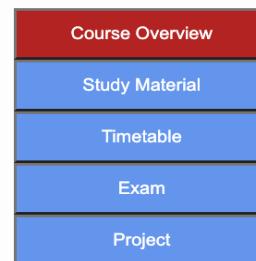
Curriculum Vitae: [PDF](#) (July, 2022)
Email: john.businge@unlv.edu



UNLV

Hi there! I'm an Assistant Professor at the University of Nevada, Las Vegas in the Department of Computer Science. I lead the Software Evolution (EVOL) Lab. Before this position, I was a Research Fellow at the University of Antwerp, Belgium, working in the Lab of Reengineering with Prof. Serge Demeyer. I was also a Fulbright Research Scholar at the University of California, Davis, U.S.A, working with in the DECAL Lab with Prof. Vladimir Filkov. I received a Ph.D. in Computer Science from the Eindhoven University of Technology (the Netherlands), under the supervision of Prof. Mark van den Brand and Prof. Alexander Serebrenik.

CS 472/672 - Software Product Design and Development I





Music AI Project



Gaming Project

Project Initiator



Student software development team



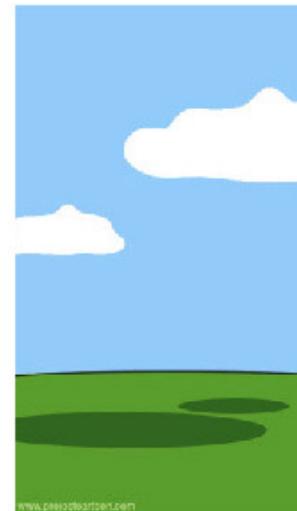
Student software development team



What the customer really needed



How the customer explained it



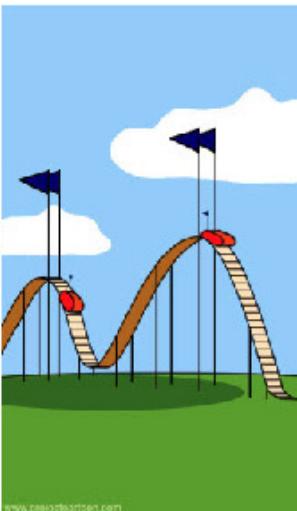
How the project was documented



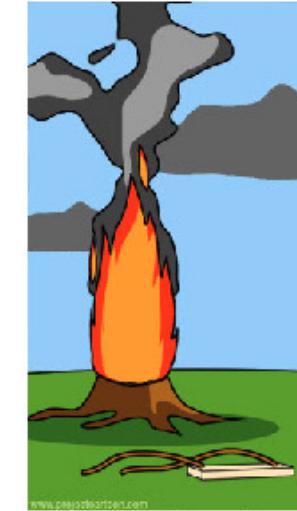
How the programmer wrote it



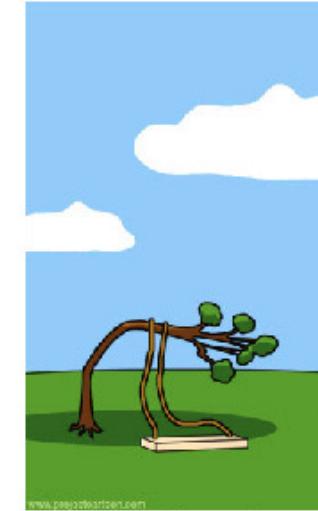
When it was delivered



How the customer was billed



What the digg effect can do to your site



The disaster recover plan

Project 2022-2023

Two projects with their specification documents have been prepared for you. You are free to choose any of them. The projects are of equal strength, so it would be nice if they are distributed equally between the groups. Groups are also free come up with their own custom projects. However, If you choose to work on a custom project, then you will need to explain/motivate why this project would allow you to demonstrate your software engineering skills. You will also prepare a specification document with in the first three weeks of the class. You can borrow a leaf on how the specification documents for the two projects below. The quality of the group's specification document does not have to be like the ones presented, but should be reasonable. I will look at your Specification documents to approve the groups custom project.

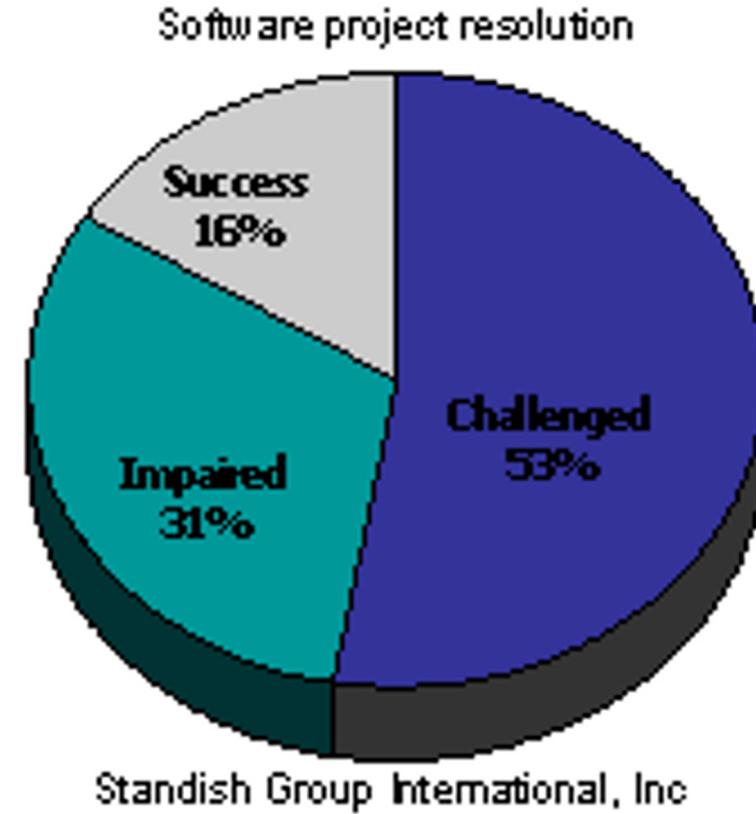
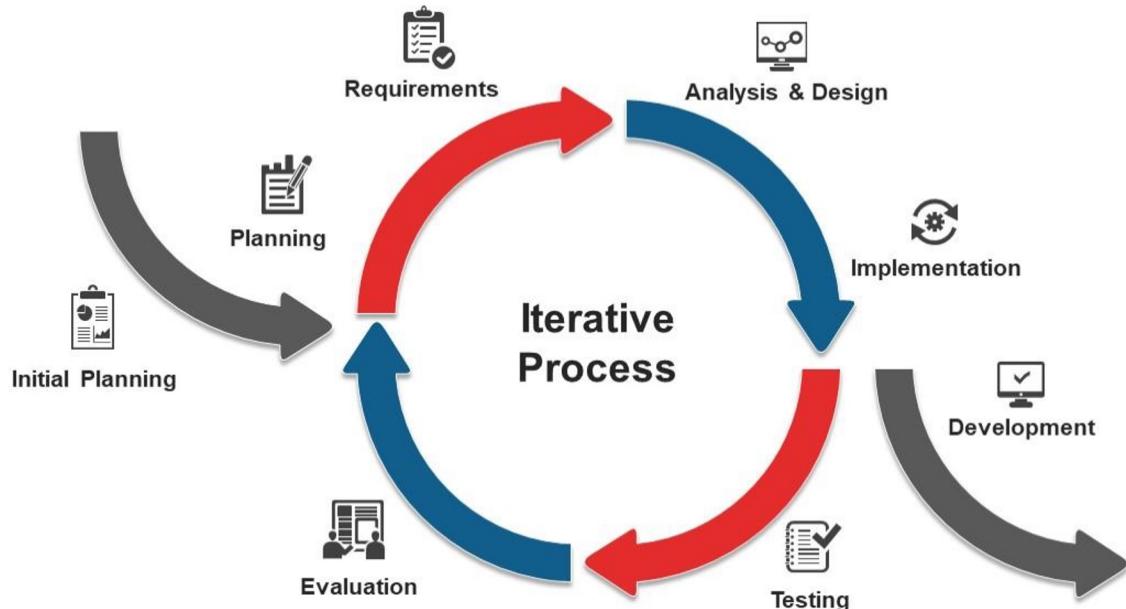
Subway Simulation

- Functional Requirements:
 - Specification 1.0 [[pdf](#)]
 - Specification 2.0 [[pdf](#)]

Traffic Simulation

- Functional Requirements:
 - Specification 1.0 [[pdf](#)]
 - Specification 2.0 [[pdf](#)]

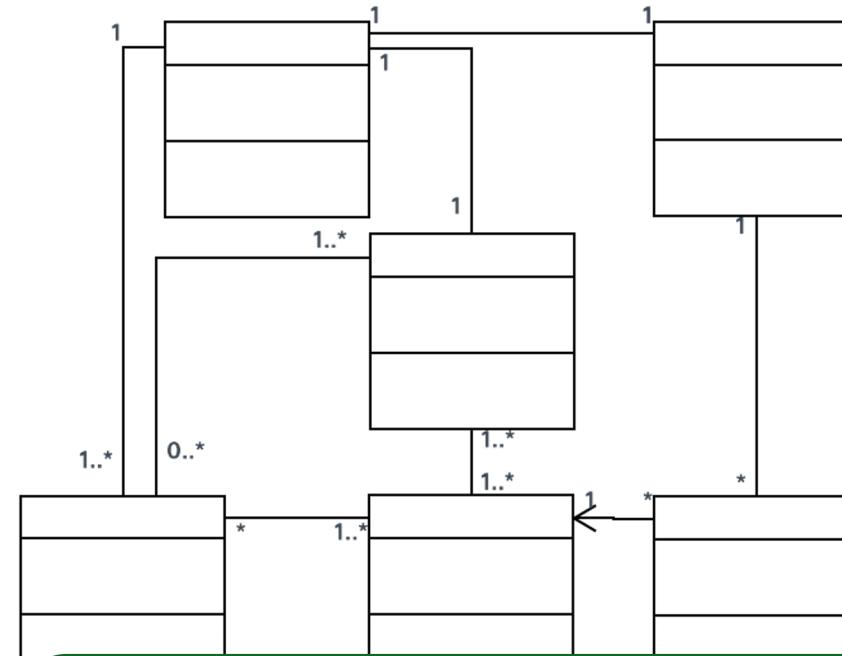
Software Requirements, Conceptual and Technical Designs



Software Requirements, Conceptual and Technical Designs



Conceptual Design



Technical Design

Object-Oriented Modelling

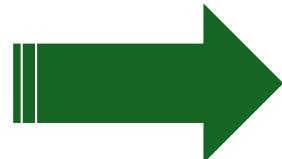
Major Design Principles

Abstraction

Encapsulation

Decomposition

Generalization



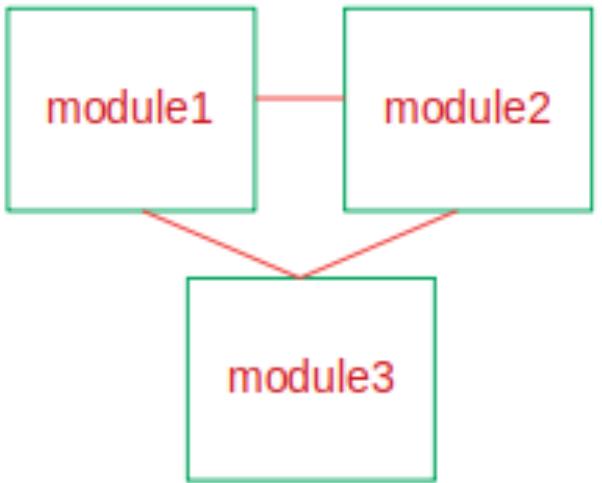
High Quality Software

Flexible

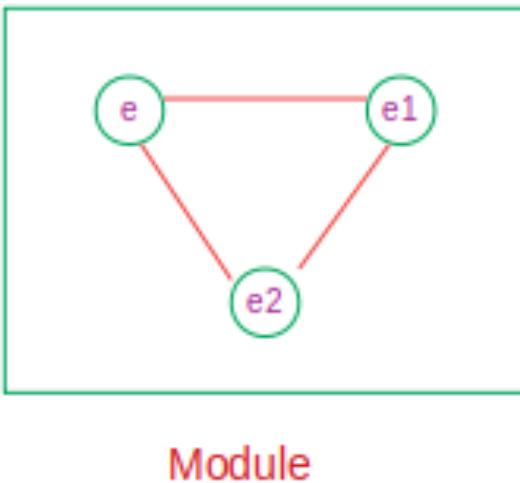
Reusable

Maintainable

Evaluating Design Complexity

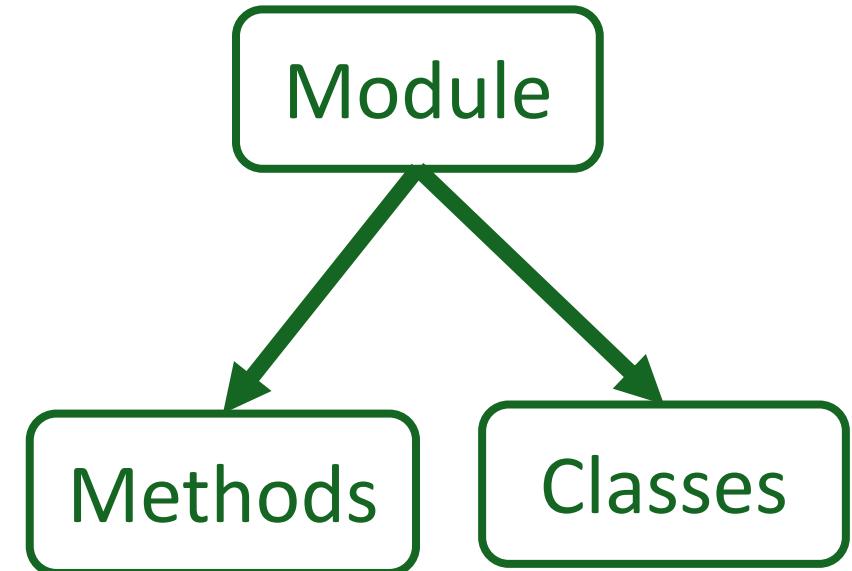


Coupling



Module

Cohesion



Methods

Classes

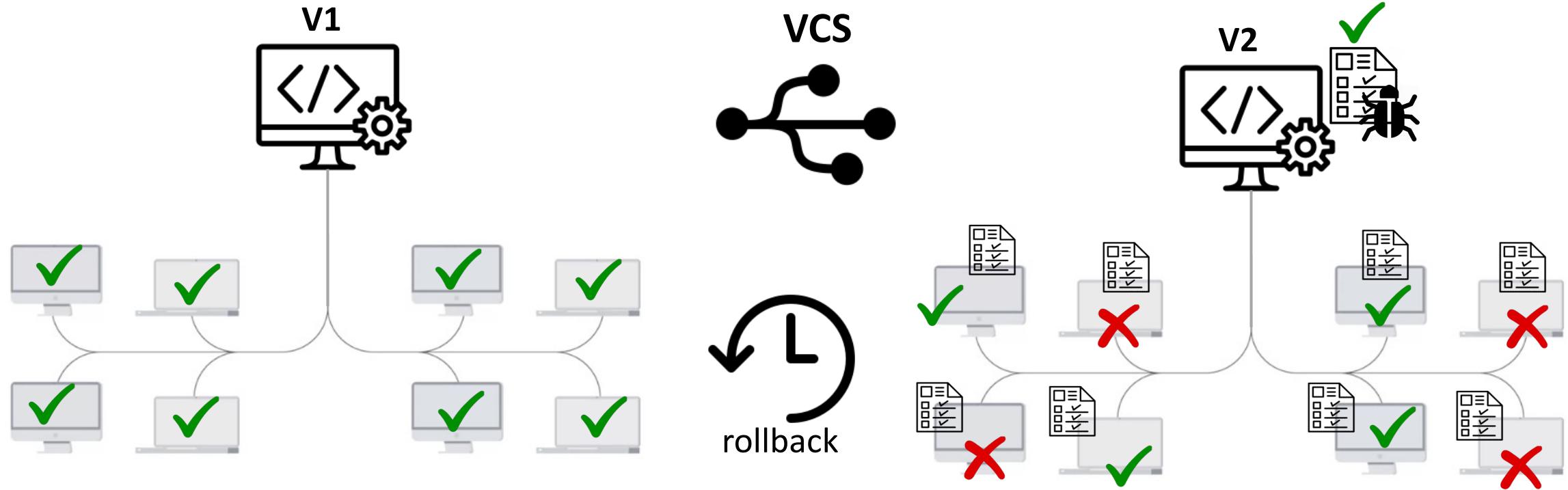
High Quality Software

Flexible

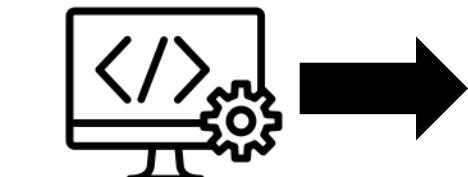
Reusable

Maintainable

Git and GitHub - Version Control



git



Software project development

Project Files

- Code
- Tests
- Documentation
- Configuration
- Design Docs

Working with Git

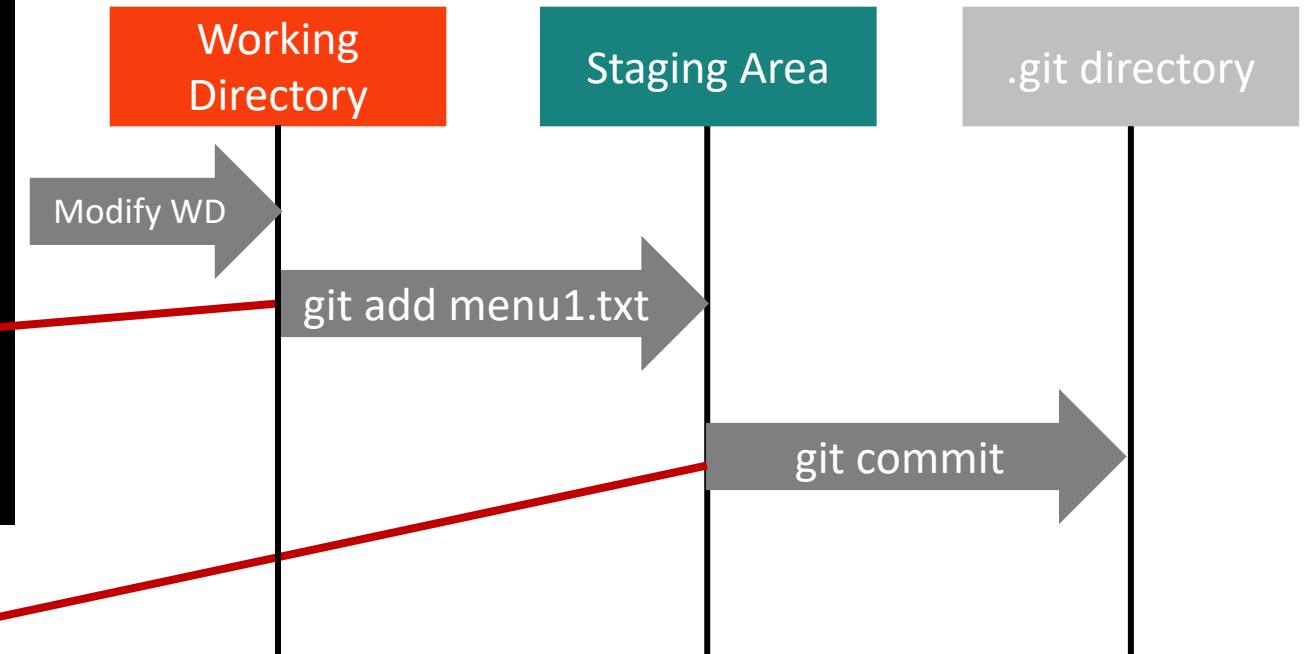
```
businge@Johns-MacBook-Pro-2 checks % cp ..../menu1.txt .
businge@Johns-MacBook-Pro-2 checks % ls -l
total 8
-rw-r--r-- 1 businge staff 41 Dec 2 19:19 menu1.txt
businge@Johns-MacBook-Pro-2 checks % git add menu1.txt
businge@Johns-MacBook-Pro-2 checks % git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file:   menu1.txt
```

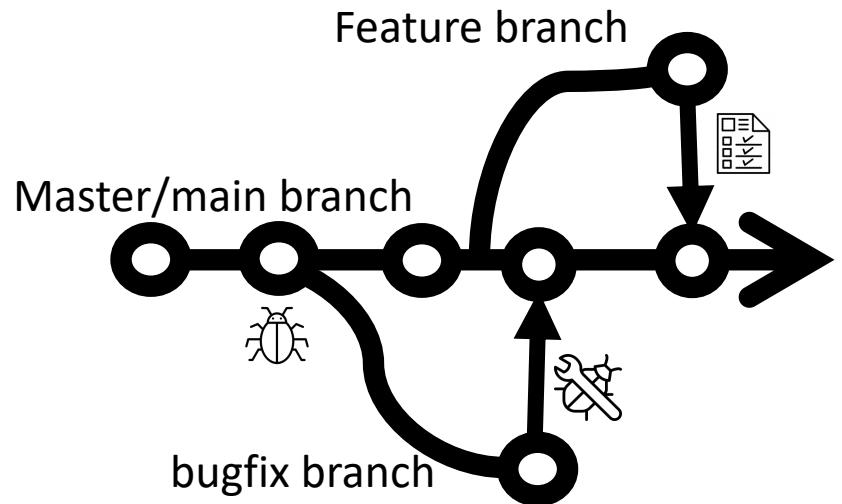
Working directory – add menu1.txt

The Git WorkFlow



```
add new menu.txt
# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# On branch master
#
# Initial commit
#
# Changes to be committed:
#       new file:   menu1.txt
#
```

Branching and Merging



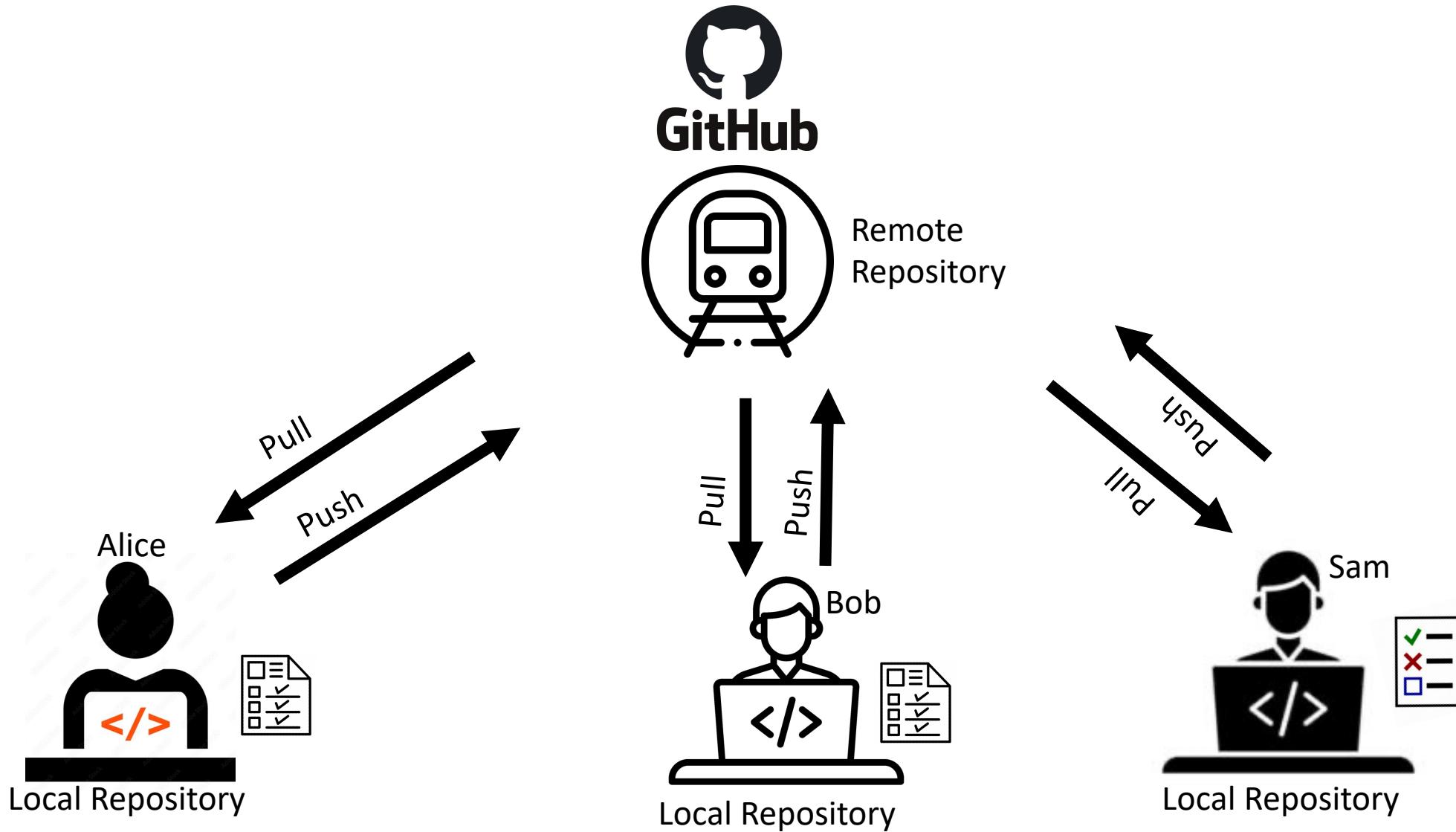
```
businge@Johns-MacBook-Pro-2 checks % git branch
* master
businge@Johns-MacBook-Pro-2 checks % git branch new-feature
businge@Johns-MacBook-Pro-2 checks % git branch
* master
  new-feature
businge@Johns-MacBook-Pro-2 checks % git checkout new-feature
Switched to branch 'new-feature'
businge@Johns-MacBook-Pro-2 checks % git branch
  master
* new-feature
businge@Johns-MacBook-Pro-2 checks % git checkout -b bug-fixing
Switched to a new branch 'bug-fixing'
businge@Johns-MacBook-Pro-2 checks % git branch
* bug-fixing
  master
  new-feature
```

```
businge@Johns-MacBook-Pro-2 checks % git checkout new-feature
Switched to branch 'new-feature'
businge@Johns-MacBook-Pro-2 checks % atom memory.py
businge@Johns-MacBook-Pro-2 checks % git add memory.py
businge@Johns-MacBook-Pro-2 checks % git commit -m 'Add an empty memory.py'
[new-feature a957a46] Add an empty memory.py
1 file changed, 4 insertions(+)
create mode 100644 memory.py
businge@Johns-MacBook-Pro-2 checks % git log -2
commit a957a462b5f9bb2ab8dc979f2c5eaf689f8fbfa7 (HEAD -> new-feature)
Author: johnxu21 <johnxu21@gmail.com>
Date:   Sun Dec 4 12:43:35 2022 -0800
```

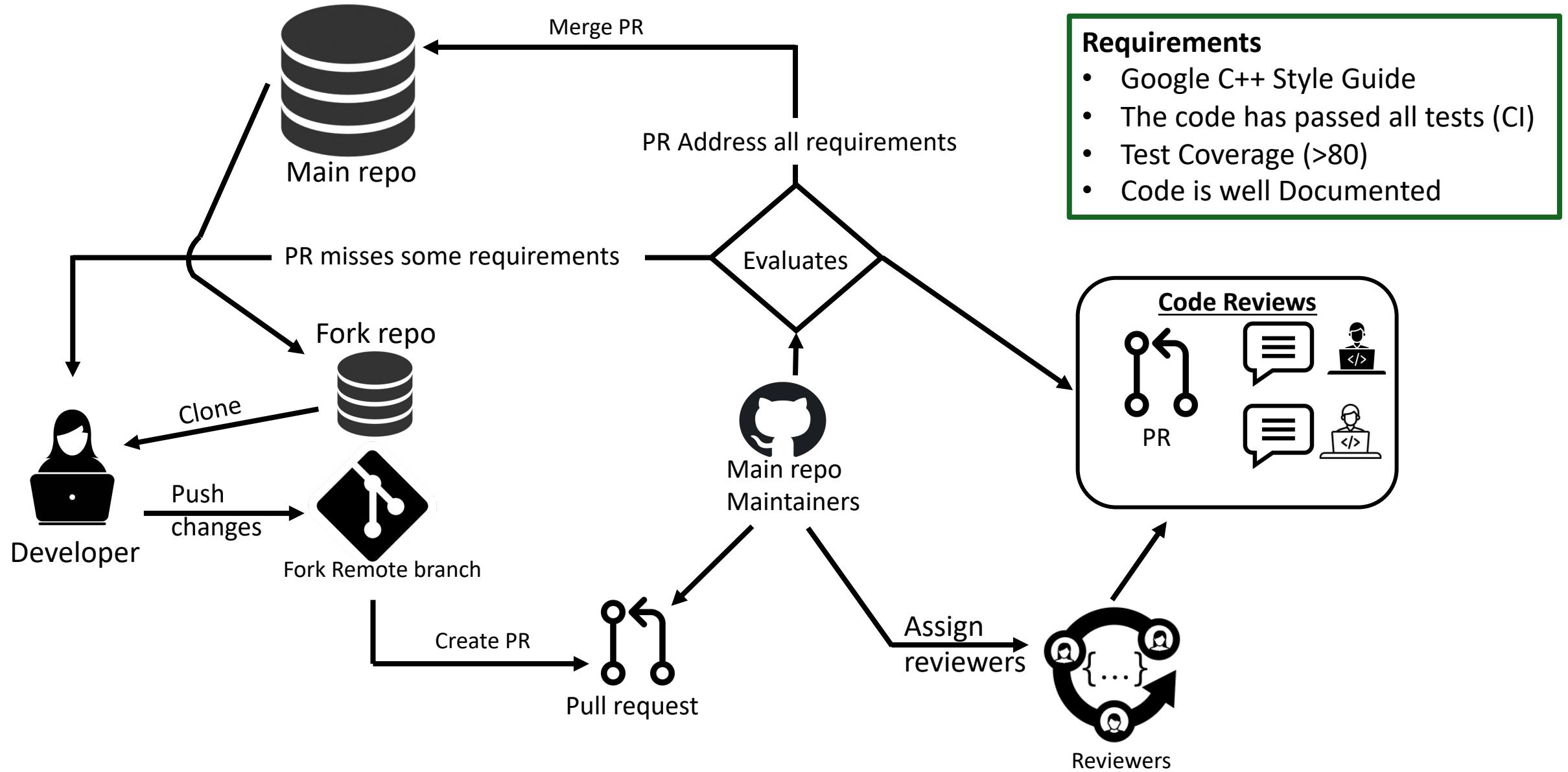
Add an empty memory.py

```
commit 2894d366f59bc7000e3736f8022faad3af003bc5 (master, bug-fixing)
Author: johnxu21 <johnxu21@gmail.com>
Date:   Sat Dec 3 19:07:02 2022 -0800
```

Working with Remote Branches



A simple Code Review Workflow



Concatenate query strings of queries/search types properly when exporting.

[Code](#)

#14284

Merged

dennisoelkers merged 5 commits into [master](#) from [fix/issue-14268](#) 2 weeks ago

Conversation 2

Commits 5

Checks 1

Files changed 6

+29 -12



dennisoelkers commented last month · edited

Member



...

Note: This needs to be backported to 4.3 and 5.0.

Description

Motivation and Context

This PR is fixing an issue related to exporting a search type. When both the search type and the query contain query strings, they are being concatenated, by simply combining them with an AND. For simple query strings this works, but it changes the logic for more complicated ones (e.g. when query string1 is foo OR bar and the second is also foo OR bar, the resulting query string foo OR bar AND foo bar has a different meaning, due to the stronger binding of the logical AND).

With this PR, concatenating two query strings wraps them in braces too, so foo OR bar concatenated to itself ends up as (foo OR bar) AND (foo or BAR), which returns the same, correct results.

Fixes #14268.

/jenkins-pr-deps Graylog2/graylog-plugin-enterprise#4502

How Has This Been Tested?

Screenshots (if appropriate):

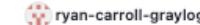
Types of changes

- Bug fix (non-breaking change which fixes an issue)
- New feature (non-breaking change which adds functionality)
- Refactoring (non-breaking change)
- Breaking change (fix or feature that would cause existing functionality to change)

Checklist:

- My code follows the code style of this project.
- My change requires a change to the documentation.
- I have updated the documentation accordingly.
- I have read the CONTRIBUTING document.
- I have added tests to cover my changes.

Reviewers



Assignees

No one assigned

Labels

None yet

Projects

None yet

Milestone

No milestone

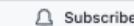
Development

Successfully merging this pull request may close these issues.

Blank CSV dashboard export

Notifications

Customize



You're not receiving notifications from this thread.

3 participants



Issue Tracker - GitHub

Screenshot of the Microsoft / TypeScript GitHub repository issue tracker.

The page shows the following statistics:

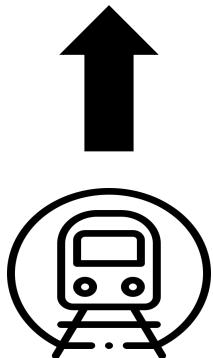
- 107 Open
- 333 Closed

Issues listed:

- Request to expose zeroType emptyStringType and isTypeAssignableTo on the TS TypeChecker** API
In Discussion Suggestion
#50694 opened on Sep 8 by sstchur 5 tasks done
- Compiler incorrectly caches module resolution if we use a custom ts.SourceFile & ts.Program cache** API
In Discussion Suggestion
#50288 opened on Aug 12 by frigus02
- Enable strictFunctionTypes** API Author: Team Breaking Change For Uncommitted Bug
#49929 opened on Jul 16 by jakebailey • Changes requested 1 task TypeScript 5.0.0
- {@link https...} inside a @remarks causes error TS2304: Cannot find name 'https'** API Bug Effort: Moderate Help Wanted
#49109 opened on May 14 by aSemy Backlog
- Create new interfaces to provide asynchronous versions for the user customizable functions in SolutionBuilder and SolutionBuilderWithWatchHost** API Suggestion
#48894 opened on Apr 30 by craighicks

Issues

- Use cases
- Problems to solve
- Features to add
- Documentation to add



Subway Project

Assessment

