CSE 464 Software Quality Assurance and Testing

Course Bootstrap

Xusheng Xiao
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Instructor and Lectures

Instructor: XushengXiao,xusheng.xiao@asu.com,BYENG 428

- • **Research Area**: Software Engineeringand ComputerSecurity

  Research Focus: Mobile Security, System Security, Program Analysis, Software Analysis, Debugging
- **Office hours**: Mon-Wed 11:00am - 12:00 pm
- **Appointments**: by Zoom appointment

Classroom: Tempe – LSE106, Mon-Wed 12:00pm - 1:15 pm •**Web page**: on Canvas (https://canvas.asu.edu/courses/231001)

• **Slack**: https://asu-2257-cse464-75978.slack.com/

Homepage: https://xusheng-xiao.github.io/

TA and Graders

- **TA**: Liangyi Huang
  - **Email**: lhuan139@asu.edu
  - **Appointment**: Please email to set up a Zoom or in-person appointment
  - **Officehours**:BYENG 424AD, Wednesday 14:30pm-4:00pm, Friday 15:00pm-4:30pm
- **Grader**: Akilesh Shankar
  - **Email**: ashank41@asu.edu
  - **Appointment**: Please emailtosetup aZoom or in-person appointment
- **UGTA**: Rudresh Bhandari
  - **Email**: rbhanda8@asu.edu
  - **Appointment**:Pleaseemailto set up a Zoom or in-person appointment
- **UGTA**: Bradley Breisch
  - **Email**: bbreisc1@asu.edu
- **TA/Grader assignments**:
  - https://docs.google.com/spreadsheets/d/1kiC9lODzazAOubWACjqCi-MLCeR07J1NgFSnHxXin4M/edit?usp=sharing
  - Slack/Email your assigned TA/grader first, and then escalate to instructor if needed

Textbook and Materials - 1

Title: Software Testing

Author: Jorgensen

Edition: 4th

Copyright Year: 2014

Publisher: Taylor & Francis Group, LLC

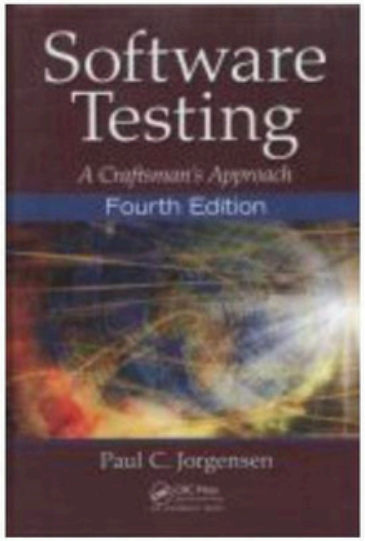
ISBN: 9781466560680

Price New: $131.75

Price Used: $99.00

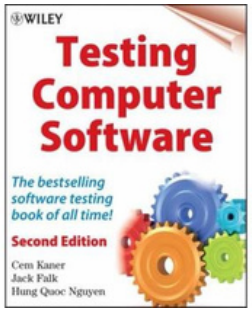
Rental Price New: $98.81

Rental Price Used: $52.70



Textbook and Materials - 2

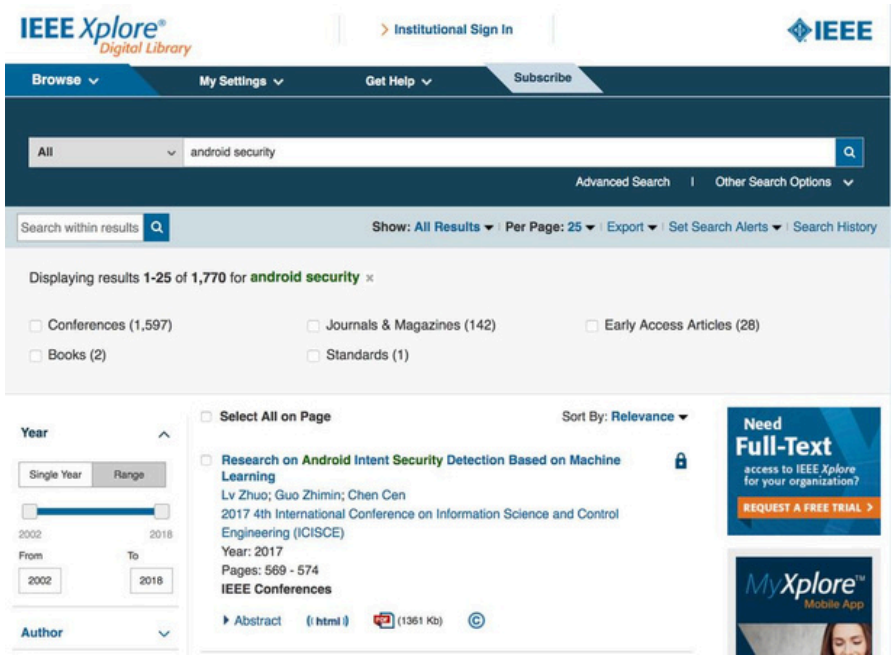
Text: "Testing Computer Software", Cem Kaner, JackFalk, andHungQuoc Nguyen



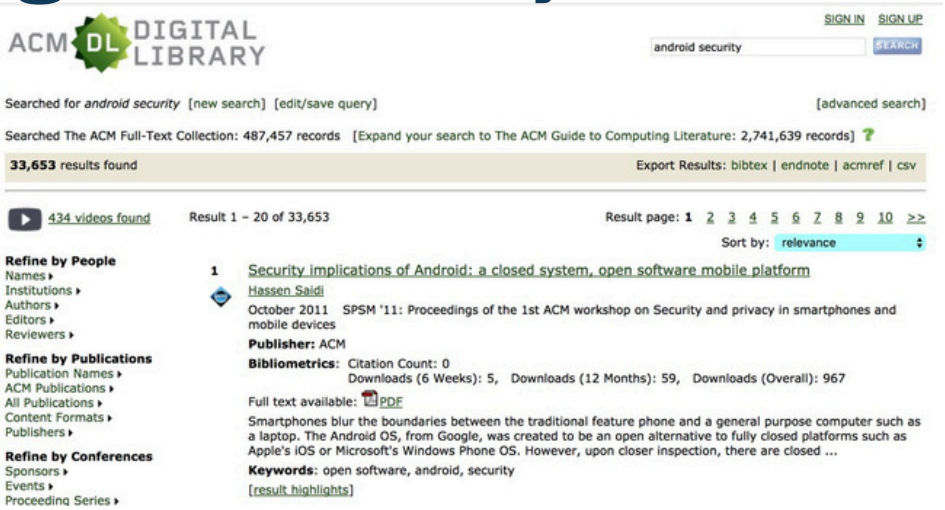
M ateri als :

- How We Test Software at Microsoft, Alan Page; Ken Johnston; Bj Rollison
- How Google Tests Software Book by James A. Whittaker, Jason A. Joseph, and Jeff Carollo

ACM/IEEE Digital Library

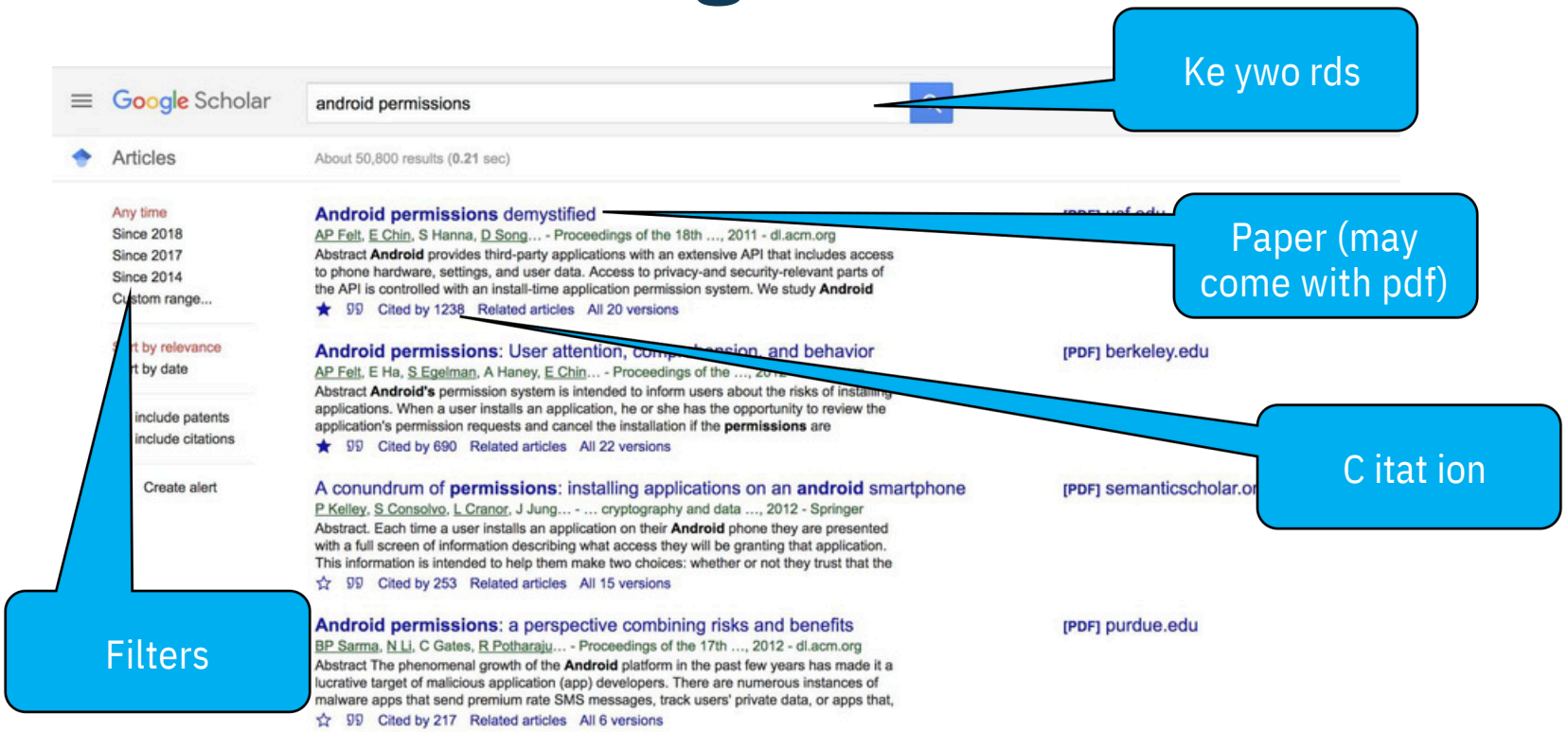


http://ieeexplore.ieee.org/



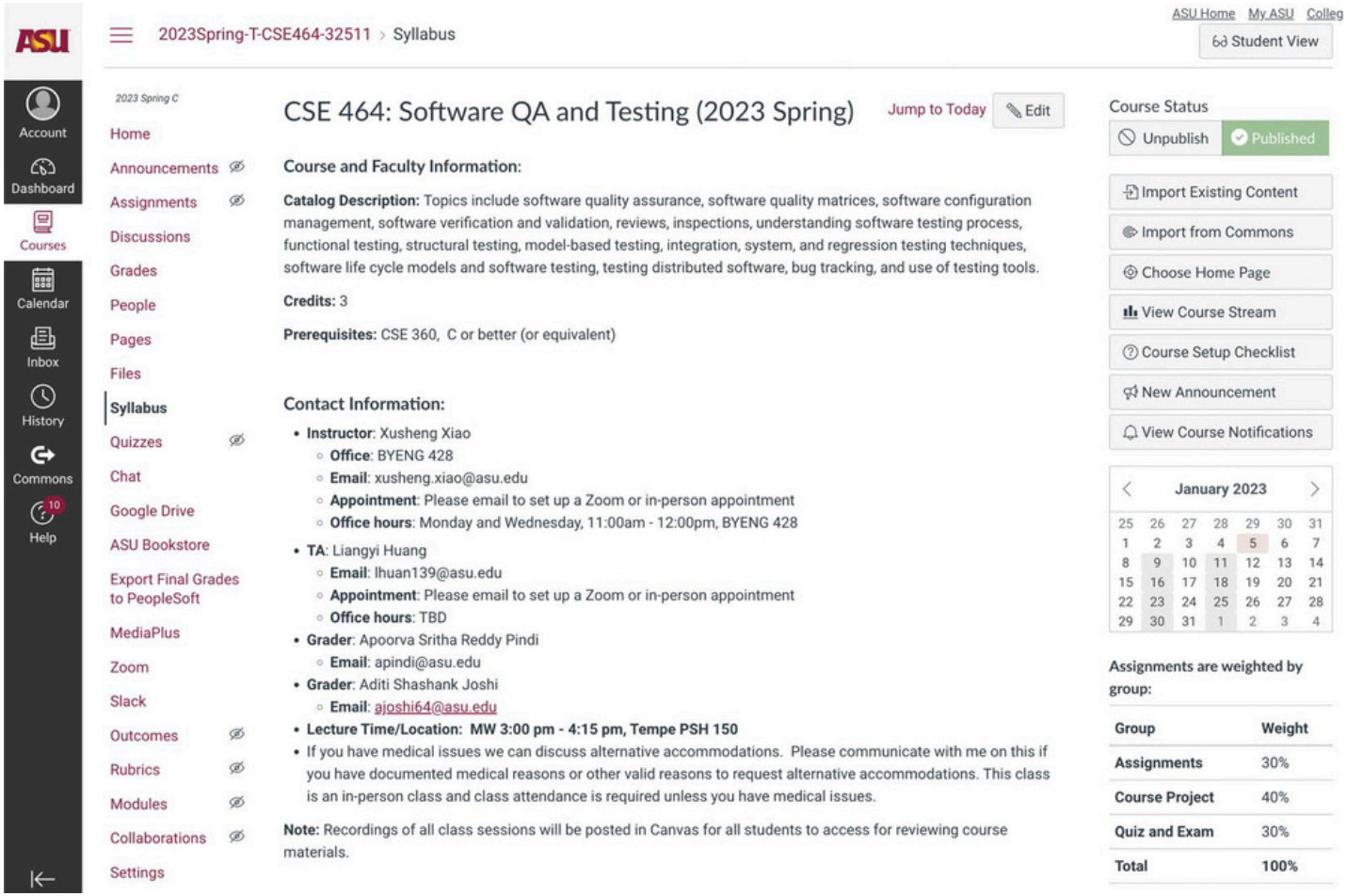
https://dl.acm.org

Google Scholar



https://scholar.google.com

Syllabus



Syllabus at https://canvas.asu.edu/

Course Structure

- Mixed with lecturesandlablectures.
  - Lectures willbe recordedanduploaded totheFilessectionat Canvas (ht tps : //c an va s .a su. e du/co urs es /231001)
  - Recorded videos will be provided before lab lectures. Students should watch the videos,practice the introducedtools,andbringquestionstothelablectures.
- Remote attendance must get approvals with valid reasons.
- Hands-on assignments and course projects
  - –Assignmentswill needusage ofcommandline tools and coding
  - Courseprojects willproduce security analysis tools
- Start installing Java 11 right away
  - https://docs.oracle.com/en/java/javase/11/install/overview-jdk-installation.html
- Get familiar with Bash in terminal
  - –For Linuxand Mac, simplyopenTerminal app
  - –For Windows, you mayinstallWindowsSubsystemfor Linux (WSL)
    - https://learn.microsoft.com/en-us/windows/wsl/install

Grading

- Assignments 20
- Quiz and Midterm %
- Course Project 30
  %
  50
- **Grade Appeal:** Please send an email to your assigned TA/grader with photos on the % grade/comment and the appeal justifications.
- **Late Submission:**All assignments are due based on the deadline set in canvas. Accommodations for late submissions with valid reasons (e.g., sick leave and family emergencies) are given only if the student communicates with the instructorBEFORE THE DEADLINE.Without valid reasons, late submissions are subject to penalty:
  - **1 day: 15%**
  - **2-3 days:**
  - **25% 4-5**
  - **days: 35%**
- **Exams:** All exams are closed book and will be given in person in the classroom so that we can proctor the exams. TA and graders will take attendance for the exams. Please come 10-20 minutes earlier. Exams can be taken on Canvas or by paper.
- **Exam Conflicts :** All conflicts much be notified to the instructor **AT LEAST 3 DAYS BEFORE THE EXAM DATE.** Rescheduling for individual students is given only for valid reasons.

Academic Integrity

- Please read the academic integrity policy carefully and **STRICTLY** follow the policy.

https://provost.asu.edu/academic-integrity

- We spend tremendous time in grading your assignments, exams, and course projects.
- We have **NO TOLERANCE** for violations of academic integrity, e.g., cheating and plagiarizing
  - For violations of academic integrity, you will receive 0 for your work
  - We have no problem failing you in this class for the semester and having the appropriate entries placed in your ASU student records.

Generative AI

- Generative AI is a technology that can often be useful in helping students learn the theories and concepts in this course. However, unless explicitly allowed by your instructor, the use of generative AI tools to complete any portion of a course assignment or exam will be considered academic dishonesty and a violation of the ASU Academic Integrity Policy. Students confirmed to be engaging in non-allowable use of generative AI will be sanctioned according to the academic integrity policy and FSE sanctioning guidelines.

GenAI Usage

- **Uses of generative AI to answer closed-book exam questions, assignments, course projects are prohibited.**
- **TA/graders will specifically check for that, and report any violations detected.**
- **Once confirmed, zero grade will be given for the exam and the student will be subject to academic integrity violation.**

Course Project

- The course projectisanindividualproject, butwill have components that require interactions with TA/grader

- The course project will include several milestones:
  1. Runnable code with unit tests
  2. Version control
  3. Code reviews
  4. Code refactorings
  5. Project report

Unit Tests

Unit tests are typicallyautomatedtestswritten and run by software developers to ensure that a section of an application (known as the "unit") meets its design and behaves as intended.

Doubling the balance and then plus 10

```
public int calAmount () { int
        ret = balance *3; ret=
        ret + 10;
        return ret;
}
```

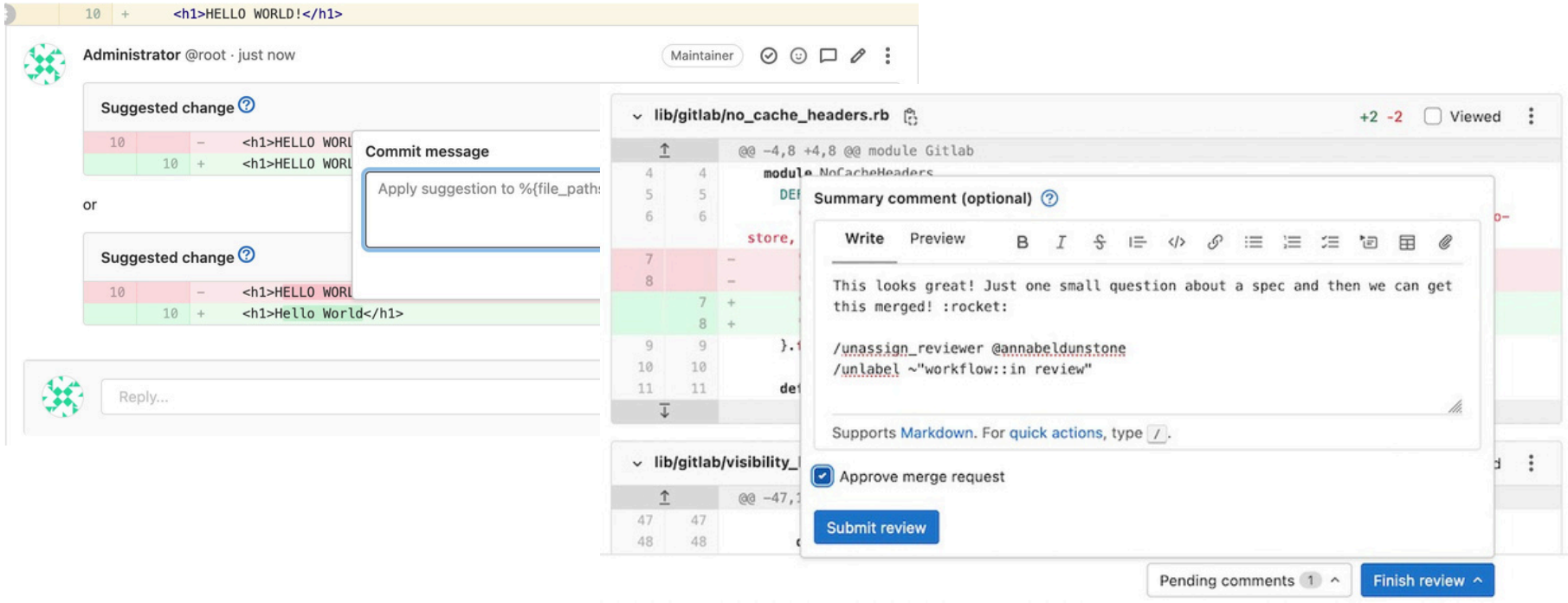
```
void testCalAmount() {  Accounta =
    new Account();
    Account.setBalance(0);
    int amount = Account.calAmount();
    assertTrue(amount == 10);
}
```

Version Control

- Version control, alsoknown assource control, is the practice of tracking and managing changes to software code.
- Version control systems are software tools that help software teams manage changes to source code over time.

Code Review

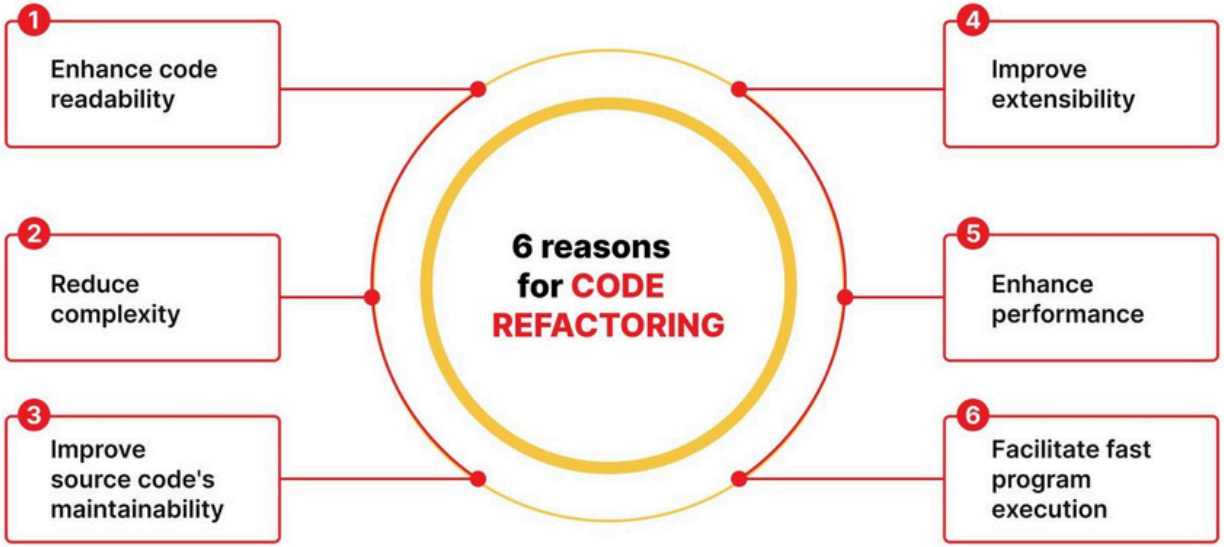
Code review is a software quality assurance activity in which one or several people check a program mainly by viewing and reading parts of its source code, and they do so after implementation or as an interruption of implementation.



Code Refactorings

Change theinternal structure ofaprogram without changing its external behavior

Done to make code **easier** to understand and **cheaper** to modify



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Project Report

- Describe the goal and the design of your developed software
- Provide inputs, outputs, screenshots of your running code
- Provide execution statistics of your tests
- Provide statistics of your code commits
- Provide statisticsandscreenshotsofyourcode reviews
- Describe yourcoderefactorings

Thank You !

Questions ?

Thank You !

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