Introduction to Software Dev Notes

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Contents

1 Overview

Tools:

- Warp

- Eclipse

- Git

What is Warp?

- Existing code base

  - Not huge, but bigger than other class projects

  - Useful because it reflects real world, you won't join a team and write code from scratch

- Written by Professor Goddard for a research project called WARP

  - Initially written in Swift, then rewritten in Java for the course

  - Primary purpose is to develop programs for network communication in wireless sensor networks

Why Warp?

- Get used to reading and modifying others' codes

- Learn to refactor code

- Rich opportunity to add:

  - documentation

  - pre- and post-conditions

  - testing

  - new features

- Learn from Professor Goddard's experiences and mistakes.

2   Git and Version Control

3   Software Development Process Models

Beginner's Model: Code and Fix

- Conceptual Development

- Code and Fix

- Release Product

Software Development Life Cycle

- Conception

- Requirements gathering

- Design

- Coding and debugging

- Testing

- Release

- Maintenance

- Retirement

Software Development Model Categories

- Plan driven models:

  - Strict methodology

  - Clearly defined phases

  - Heavy weight

  - Works best for large contracts

- Agile development models:

  - incremental and cyclic

  - small, frequent releases

  - less documentation

  - Works well for start ups

Waterfall Process Model

- Conceptional Development

- Requirements Analysis

- Architectural Design

- Detailed Design

- Code and Debug

- System Testing

- Release and Maintenance

4   Code Construction

Who is the code for?

- The computer

  Must fulfill requirements and implement the design

- You and other programmers

  Must be readable and easy to understand

5   Debugging

Testing finds errors, debugging repairs them