SE Week 11 Notes

L1: Software Organizations

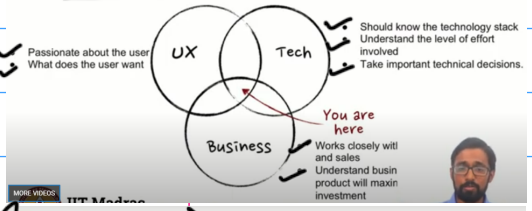
Purpose of a Software Company

Provide value to potential users of the software system

Marketing Team

- Look for opportunities in the market - to provide value
- Conduct market research, identify audiences

Product Managers



Designers

- User Experience (UX) roles
- Transform requirements to solutions
- Talk to users, create prototypes

Software Engineers

- Write code with others in the team to implement requirements
- Software engineers don't get to decide what product is made, or what problems the product solves (most of the time)

Engineering Managers → Project M.

- In large organizations - transmitting information between higher and lower parts
- Also known as project manager
  - Organizing and prioritizing work
  - Coordinating between different teams
  - Resolving interpersonal conflict between engineers

Sales Team

- Sell the product it to users that marketing team has identified
- Provide feedback to marketing, product, and design teams regarding the product, which engineers then address.

Support Team

- Resolve problems that clients have
- Provide feedback to product, design, and engineering about the product and it's defects/shortcomings

Data Scientists

- Analyze data generated from different teams, users
- Help organization make better decisions
- E.g. -
  - Help marketing team analyze business data
  - Track sales targets
  - Help engineers understand patterns on app usage

Ethics and Policy Specialists

- People with background in law, social science, policy
- Shape the terms of service of the software product, software licenses, privacy policy etc.
- Important for any company that works with data

1) In a large software organisation, identify the role that is primarily responsible for conducting market research, identifying audiences, and looking for opportunities in the market.
- [x] Marketing team
- [ ] Designers
- [ ] Product managers
- [ ] Sales Team

2) Which role in a large software organisation is primarily responsible for communicating with users, creating prototypes and transforming requirements into solutions?
- [ ] Marketing team
- [x] Designers
- [ ] Product managers
- [ ] Sales Team

3) Which role in a large software organisation is primarily responsible for writing code in collaboration with other team members to implement the requirements?
- [ ] Marketing team
- [ ] Designers
- [x] Software Engineers
- [ ] Data Scientists

4) Which role in a large software organisation is responsible for providing feedback to marketing, product, and design teams regarding the product, which is then addressed by the engineers?
- [x] Support team → 1° work
- [ ] Sales team
- [ ] Software Engineers
- [ ] Data Scientists

5) Which role in a large software organisation is responsible for devising the terms of service of the software product, the software license, the privacy policy, etc.?
- [ ] Support team
- [ ] Sales team
- [ ] Software Engineers
- [x] Ethics and policy specialist

L2: Communication, Collaboration, & Productivity

Conceptual Integrity

Everyone on a team has the same understanding of what is being built and why

Effective communication ensures conceptual integrity

Knowledge Sharing Tools

- Main Purpose - used for sharing documents and archiving decisions

Issue Tracker - Knowledge Sharing Tools

JIRA, Pivotal Tracker → track issues

- Track different issues
- History of who all worked on these issues

GitHub Pages - Knowledge Sharing Tools

- Many libraries, frameworks are hosted on Github - E.g. - Vue.js

Stack Overflow - Knowledge Sharing Tools

- Helps to resolve issues that you are facing
- Provides links to additional learning resources

Importance of Knowledge Sharing Tools

- Knowledge of one project might be needed in another project. Useful if it is documented and archived properly
- When people leave the organization - specialised knowledge goes along with them
  - Mitigation - "cross-training" - rotating developers between projects

Productivity

- Traditionally - work done per unit time
- Difficult to define in software engineering - Not necessarily no of lines of code
- E.g. delivered the features assigned to you, while ignoring other team members - harms the team's productivity and progress

Productivity - Right Tools

- Project management tools -
  - Enables all members of the team to get a big picture as well as detailed view of progress
  - E.g. JIRA, Pivotal Tracker
- Development tools
  - IDEs, features in IDEs help developers become more productive

1) Identify the correct type of tools that enable all the members of a software development team to get a big picture as well as a detailed view of the progress.

- [x] Project management tools
- [ ] Development tools
- [ ] Knowledge-sharing tools
- [ ] None of the above

2) Which kind of tools includes the IDEs and features in IDEs that helps the developers to become more productive?

- [ ] Project management tools
- [x] Development tools
- [ ] Knowledge-sharing tools
- [ ] None of the above

3) Which kinds of tools are used for sharing documents and archiving decisions?

- [ ] Project management tools
- [ ] Development tools
- [x] Knowledge-sharing tools
- [ ] None of the above

4) Identify the knowledge-sharing tool which is used as an issue tracker.

- [x] JIRA

5) Identify the knowledge-sharing tool used for hosting the libraries, frameworks, etc.

- [ ] JIRA
- [x] GitHub
- [ ] Slack
- [ ] Stack overflow

L3: What makes a great SE?

Decision Making

- Macro decisions -
  - design and architecture level
  - E.g. which libraries, frameworks to use
- Micro decisions
  - Algorithms, data structures for a particular module

Rational Decision Making Process

1. Identify the decision to be made
2. Systematically identify alternatives
3. Think through potential outcomes
4. Evaluate which of the outcome is best for the given context
5. Make a decision

Course Summary

- Software processes - Different processes used in software development
- Tools - Used to build software - capture requirements, software planning, development, testing
- Code - how to organize your code, best practices

1) Software engineers as well as Designers/Architects are expected to have the ability to make good design decisions.

- [x] Yes
- [ ] No