[**Homework 22**](https://github.com/hendraanggrian/IIT-ITM511/blob/assets/assignments/hw22.pdf)**: Project management**

**Problem 1**

*Explain why the intangibility of software systems poses special problems for software project management.*

Software project progression cannot be determined by its outside appearance. Unlike physical construction that is visibly seen, reviewing software requires external tools to validate work. This makes it difficult for project managers to predict scheduling and budgeting accurately.

**Problem 2**

*Explain how company size and software size are factors that affect software project management.*

In software organizations, bigger companies tend to be slowed down by bureaucracy while smaller companies collaborate efficiently. With software projects, larger projects necessitate complex planning whereas lighter software can move faster. Therefore, both organization and software size significantly impact software project management.

**Problem 3**

*What is risk monitoring? How can risks be monitored? List a few examples of types of risks and their potential indicators.*

Risk monitoring refers to the last stage of the risk management guidelines. It involves re-evaluating plans when new information has come to light. Risks have to be routinely observed to address issues before they escalate.

Types of risks and their potential indicators:

1. **Estimation:** Missed projection of software development time, cost or project overall size (Sommerville, 2016).
2. **Organizational:** The software project faces disturbance due to management shakeups or budget cuts.
3. **People:** Experiencing staff shortages because critical members are unavailable or untrained.
4. **Requirements:** Changes to user requirements proposed by the customer are causing further delay.
5. **Technology:** Hardware limitations or scheduled maintenance interrupt software development progress.
6. **Tools:** The selected software components are obsolete and incompatible with others.

**Problem 4**

*Explain why keeping all members of a group informed about progress and technical decisions in a project can improve group cohesiveness.*

Sharing work progress and delegating responsibilities promote a sense of ownership among team members. Workers who feel trusted and appreciated put more effort into the project's success. Aside from improving transparency, this approach creates a collaborative environment where team members can resolve misunderstandings and maintain team spirit.

**Problem 5**

*Explain why keeping all members of a group informed about progress and technical decisions in a project can improve group cohesiveness.*

In the given scenario, a software team of underage engineers is offered a deal that demands unpaid overtime. While I understand the demand of meeting deadlines, I cannot ethically accept asking teenagers to work excessively and risk burnout, especially without fair compensation. Instead, a new negotiation prioritizing worker's health should be pursued.

Personal deciding factors driving the final decision:

* **Project duration:** The development time window and whether they conflict with individual appointments. A short development period is favored to avoid disruption to personal life.
* **Legal compliance:** States have varying protection against underage labor. Depending on their location, a software team could be fined for hiring teenagers.
* **Desperate measures:** Some workers desperately need their jobs to earn money to advance their lives or exit difficult circumstances. A middle ground is expected between ethics and finance.

# **References**

Sommerville, I. (2016). Software Engineering. In *Software engineering diversity* (10 ed., pp. 647–648). Pearson Education.