M10.B1: Homework Assignment 10: Crystal

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Crystal is a family of methods and a set of guidelines that you adjust to meet your project's needs. The crystal technique is an agile framework that is thought of as a lightweight or agile methodology that focuses on people and their interactions.

The approaches are color-coded based on how seriously human life is at stake. It is mostly used for short-term projects by a group of developers who share a workspace. Crystal is one of a limited number of Agile Software Development Life Cycle (SDLC) models.

The Crystal agile framework is based on two fundamental beliefs:

- Teams can improve and optimize their workflows on their own.
- Every project is unique and constantly changing, which is why the project's team is best suited to determine how the work will be completed.

The Crystal family of techniques uses different colours to indicate the weight of each methodology. A minor project might use Crystal Clear, Crystal Orange, or Crystal Yellow, whereas a mission-critical project involving human life might use Crystal Diamond or Crystal Sapphire.

All three of the features mentioned are mission-critical and, if not built properly, can endanger humans. The only distinction could be the number of people working on the project. In addition to the "scale" factor, another factor that influences the framework is "criticality," which refers to the degree of potential harm the system could cause if it does not function as intended.

Self-parking, where the car parks itself without human assistance

We can use the Crystal Red methodology because this could be a mid-sized project. The reason for this is that there will be a large number of people involved in this project, and there is also a significant risk involved because there are numerous ways the car could endanger humans while in auto-parking mode. A team of 40-50 people appears to be a sufficient size to handle the mechanical and software engineering aspects of his feature.

Automatic lane change, where the car changes lanes automatically when the driven hits the turn signal

This appears to be a minor feature in comparison to the previous one. So, I believe we can go with a method like Crystal Orange, where the human risk is medium and the team size is low as compared to previous feature. This feature can be handled by a team of 15-25 people. Real Users provide feedback. These variant employs automated testing, which speeds up bug resolution and reduces the need for excessive documentation.

Honking the horn when appropriate to warn pedestrians and other drivers

This is the smallest of the three features. There is little complexity involved, and continuous testing by real users would automatically aid in the discovery of bugs and errors. There is some risk to human life, but in a self-parking car project, honking at pedestrians appears to be a common feature, and a team of 7-10 members may be sufficient to handle this, so I believe the Crystal Yellow method is appropriate here.

Strengths of Crystal:

- It allows team to work in the most effective way
- It facilitates direct team communication and transparency
- Teams communicate directly with one another, lowering managerial overhead.
- Its adaptive approach lets teams to respond well to changing requirements

Weakness of Crystal:

- Lack of pre-defined plans can lead to scope creep
- Lack of documentation may lead to confusion