The aim of the proposed assignment is to develop a bespoke software development methodology to fulfill the requirements of the situation at hand, and address the problems. Suppose that an organization suffers from the following problems:

- Lack of standards and methods which managers and developers agree upon; as a result, managers do not accept the procedures followed by the developers. On the other hand, project managers do not have much knowledge of the proposed solutions and project activities. This has resulted in wrong estimations for the project.
- Lack of a teamwork-enhancing environment; as a result, developers do not utilize a specific process to accomplish their tasks. Furthermore, projects are delivered along with a great deal of unnecessary documents, which are not relevant to the goals of analysis and design. Therefore, the skills and intelligence of the individuals has become the main factor in determining project success. Instead of considering programming as an engineering activity, it is taken to be an art. Therefore, programmers are blamed for all development problems, whereas managers are not held accountable for anything.
- Managers estimate project deadlines without following any specific engineering discipline. Durations are therefore underestimated. This results in deadlines which are impossible to meet. For instance, a task requiring one month for realizing its goals is estimated to take one or two weeks. Moreover, no standard has been put in place for working times, so developers are forced to work overtime. This has resulted in fatigue (which decreases the quality of products), and in some cases, even the resignation of developers.
- Maintenance difficulties; lack of a specific structure and procedure for the development effort has resulted in serious difficulties in maintaining the products. Developers perform their activities in their own individual styles. Inconsistent products are therefore developed. If a specific artifact of the project requires modification, a tedious process that encompasses several redundant steps should be conducted. The first and foremost time-consuming task is to understand the artifact; developers often get stuck in this task, and prefer to abandon the change process altogether.
- Complicated code; as a result, understanding, debugging, and changing the code is tedious and time-consuming. No guidance or assistance is provided to the developers. Therefore, some of the developers have become bottlenecks. In addition to their constant fatigue and low performance, developers increasingly prefer to quit, and the developers who join the team in mid-project take a long time to get in step with the rest of the team.

To address these problems, sum up your knowledge of “Software Development Methodologies”, and perform the following steps:

**S1: Project Characterization** - Study the case study thoroughly for several times, and
characterize the situation described. Project Characterization aims at identifying the features of the specific situation of the project at hand.

**S2: Identification of the Methodology Requirements**- In this activity, the following steps should be followed:

1. Translate the project characteristics specified in the previous steps into a set of methodology requirements.
2. Add the requirements which should be satisfied in any typical software development methodology.

[You are familiar with some of the methodology requirements: the criteria introduced in lecture 1]

**S3: Designing the target method**- In this activity the following steps should be followed. Choose an appropriate method development strategy from among the following approaches:

- Ad-hoc
- Assembly-based
- Paradigm-based or
- Extension-based

Use your current knowledge of methodology engineering approaches and the variety of software development methodologies with which you are familiar.

**S4: Implementing the target method**- In this activity the following steps should be performed:

1. Add the required details to the designed method so that it is implementable in the situation of the case study.
2. Use EPFC in the implementation step.

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