

These questions relate to the Software Design Methods: Life Belt or Leg Iron? article (by David Budgen) that was handed out in class. *Please* hand up to a maximum of two pages of typewritten answers according to the format defined in the homework instructions.

1. [30pts] Describe some of the issues involved in developing a design process?

- The need make assumptions about the form of the solution during the design process.
- The ‘wicked’ nature of any design process: sometimes a problem has to be solved once in order to clearly define the problem.
- In designing the solution to a problem, new characteristics of the problem are revealed.

2. [40pts] The article mentions procedural design and object-oriented design as two methods of decomposing a problem into software: (a) Describe the basic differences between these methods, and (b) Describe the strengths and weaknesses of each method.

Procedural software design:

- The concepts of this method could easily be taught through courses.
- This method does not lend itself well to information hiding, and is considered to be inferior to OO design methods for highly complex software systems.

Object-Oriented software design

- Has been used in recent years as an educational tool for decomposing a problem.
- Has the issue of not only designing a component for a given project, but also has the question of how to design a component so that it can be re-used.
- An excellent paradigm for analysis and design, but presents major difficulties for the designer

3. [30pts] Besides procedural design and OO design, the article describes other methods which could be used to learn about the design process. Briefly summarize these tools in your own words.

- Designing software by finding patterns
- Using architectural concepts to decompose a problem
- Going from pencil-and paper to computerized tools