Development and implementation: Systems development; Software design SWDN

Description

The specification and design of software to meet defined requirements by following agreed design standards and principles. The definition of software, components, interfaces and related characteristics. The identification of concepts and patterns and the translation into a design which provides a basis for software construction and verification. The evaluation of alternative solutions and trade-offs. The facilitation of design decisions within the constraints of systems designs, design standards, quality, feasibility, extensibility and maintainability. The development and iteration of prototypes/simulations to enable informed decision-making. The adoption and adaptation of software design models, tools and techniques based on the context of the work and selecting appropriately from predictive (plan-driven) approaches or adaptive (iterative/agile) approaches.

Level 6

Leads the selection and development of appropriate software design methods, tools, techniques; whether predictive (plan-driven) approaches or more adaptive (iterative/agile) approaches. Develops organisational policies, standards, and guidelines for software design and software architectures. Ensures adherence to technical strategies and systems architectures (including security).

Level 5

Selects, adopts and adapts appropriate software design methods, tools and techniques; selecting appropriately from predictive (plan-driven) approaches or adaptive (iterative/agile) approaches. Specifies and designs large or complex software components. Undertakes impact analysis on major design options, makes recommendations and assesses and manages associated risks. Specifies prototypes/simulations to enable informed decision making. Evaluates the quality of others' systems designs to ensure adherence to standards and identifies corrective action, if needed. Ensures that the system design balances functional, quality, security and systems management requirements. Contributes to development of organisational software design and architecture policies and standards.

Level 4

Designs software components and modules using appropriate modelling techniques following agreed software design standards, patterns and methodology. Creates and communicates multiple design views to identify and balance the concerns of all stakeholders of the software design and to allow for both functional and non-functional requirements. Identifies and evaluates alternative design options and trade-offs. Recommends designs which take into account target environment, performance security requirements and existing systems. Reviews, verifies and improves own designs against specifications. Leads reviews of others’ designs. Models, simulates or prototypes the behaviour of proposed software to enable approval by stakeholders, and effective construction of the software. Verifies software design by constructing and applying appropriate methods.

Level 3

Undertakes complete design of moderately complex software applications or components applying agreed standards, patterns and tools. Assists as part of a team in the design of components of larger software systems. Specifies user and/or system interfaces. Creates multiple design views to address the concerns of the different stakeholders of the design and to handle separately functional and non-functional requirements. Assists in the evaluation of options and trade-offs. Collaborates in reviews of work with others as appropriate.

Level 2

Creates and documents detailed designs for simple software applications or components applying agreed modelling techniques, standards, patterns and tools. Contributes to the design of components of larger software systems. Reviews own work.