



Sessional Assignment

Software Verification and validation

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What is Z specification, why it is use for, also give Example.

Ans:

Z Language is a model-based, formal descriptive language proposed by Jean-Raymond Abrial, Steve Schuman and Bertrand Meyer in 1977 and later developed into a programming research group at Oxford University. It is based on the Zermelo Frankel axiomatic set theory and the logic of first order predicate. Z sign is a hard typed, mathematical, descriptive language. It has strong commercially available tool support for checking Z texts for syntax and typing errors as a compiler checks code in a programming language. It cannot be executed, interpreted or compiled in the running program. This allows the specification to decompose into smaller pieces called schemas. The schema is the main feature that distinguishes Z from other formal symbols. In Z, the static and dynamic aspects of any system can be described using schemas. Z's description describes the data model, the state of the system, and the functions of the system. The description of Z is useful for those who are looking for requirements, those who are implementing programs to meet those requirements, those who are testing the results, and those who are looking for system manuals.

Z is based on standard mathematical indicators used in axiomatic set theory, Lambda calculus, and first order predicate logic. All expressions are typed in Z notation, thus avoiding some differences in axiomatic set theory. Z contains a standard catalog of commonly used mathematical functions (called mathematical toolkits) and is predicted, defined using Z itself. Although the Z notation (a method similar to the LL language before) uses many non-ASCII symbols, its condition includes suggestions for representing the ASCII and latex Z symbol. There is Unicode encoding for all standard Z symbols.

Example: Data dictionary entry

[NAME, DATE]

sem_model_types = { relation, entity, attribute }

DataDictionaryEntry

name: NAME

type:

sem_model_types

creation_date: DATE

description : seq Char

#description ≤ 2000