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ASSIGNMENT : SOFTWARE VERIFICATION AND VALIDATION

Q.1:- What is Z specification, why it is use for, also give Example

Ans:-

The Z notation is a formal specification language used for describing and modelling computing systems. It is targeted at the clear specification of computer programs and computer-based systems in general. Z is based on the standard mathematical notation used in axiomatic set theory, lambda calculus, and first-order predicate logic. All expressions in Z notation are typed, thereby avoiding some of the paradoxes of naive set theory. Z contains a standardized catalogue of commonly used mathematical functions and predicates, defined using Z itself. Z is a model oriented formal specification language based on ZermeloFränkel axiomatic set theory and first order predicate logic. It is a mathematical specification language, with the help of which natural language requirements can be converted into mathematical form. Although Z notation (just like the APL language, long before it) uses many non-ASCII symbols, the specification includes suggestions for rendering the Z notation symbols in ASCII and in LaTeX. There are also Unicode encodings for all standard Z symbols

Example

Add and lookup operations

Add_Error

⊔ DataDictionary
entry?: DataDictionaryEntry
error!: seq char

entry?.name ∈ dom ddict
error! = “Name already in dictionary”

Lookup_Error

⊔ DataDictionary
name?: NAME
error!: seq char

name? ∉ dom ddict
error! = “Name not in dictionary”