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Class: BSSE

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SECTION: A

Subject: Software Verification and validation

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ASSINSIONAL ASSIGNMENT

Software Verification and validation

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

Definition:-

The **Z** notation /ˈzɛd/ 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

Uses:-

is a formal specification language .Used for describing and modelling computing systems based on the standard mathematical notation used in axiomatic set theory, lambda calculus and first-order predicate logic.

Example:-

Here is an example of a from the birthday-book specification: Birthday Book known : NAME birthday : NAME   DATE known = dom birthday This definition may also be written in horizontal form: BirthdayBook =b [known : NAME; birthday : NAME   DATE | known = dom birthday

Example: Birthday Book

- One possible state

$known = \{John, Mike, Susan\}$
$birthday = \{John \mapsto 25\text{-}Mar,$
$\quad\quad\quad\quad Mike \mapsto 20\text{-}Dec,$
$\quad\quad\quad\quad Susan \mapsto 20\text{-}Dec\}$

$$\begin{array}{|l|}
\hline
\_BirthdayBook_____ \\
known : \mathbb{P}\ NAME \\
birthday : NAME \nrightarrow DATE \\
\hline
known = dom\ birthday \\
\hline
\end{array}$$

- Stated properties
  - No limit on the number of birthdays recorded
  - No premature decision about the format of names and dates
  - Q: How many birthday can a person have?
  - Q: Does everyone have a birthday?
  - Q: Can two persons share the same birthday?