

Concordia University
Department of Computer Science and Software
Engineering

SOEN 331 - S and U
Introduction to Formal Methods
for Software Engineering

Assignment 2 - Solutions
The Object-Z specification language

Team 19 - Section U

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1 Contact management

Contacts

$\uparrow (MakeNewContact, AddNumber, SearchForNumber, DeleteNumber)$

$numbers : \mathbb{P}PhoneNumberType$
 $recorded : PhoneNumberType \leftrightarrow NameType$

$numbers = dom\ recorded$

INIT

$recorded = \emptyset$

MakeNewContact

$\Delta(recorded)$
 $number? : PhoneNumberType$
 $name? : NameType$

$number? \notin numbers$
 $name? \notin ran\ recorded$
 $recorded' = recorded \cup \{number? \mapsto name?\}$

AddNumber

$\Delta(recorded)$
 $number? : PhoneNumberType$

$number? \notin numbers$
 $name? \in ran\ recorded$
 $recorded' = recorded \cup \{number? \mapsto name?\}$

SearchForNumber

$name? : NameType$
 $number! : PhoneNumberType$

$name? \in ran\ recorded$
 $number! = recorded(name?)$

DeleteNumber

$\Delta(recorded)$
 $number? : PhoneNumberType$

$number? \in numbers$
 $recorded' = \{number?\} \triangleleft recorded$

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Contacts/cont.

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