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Unit 4

Module 1

## Ex. 1.1

A = {1, 3, 5, 7, 9, 11, 13, 15, 17, 19}

B = {1, 2, 3, 5, 7, 11, 13, 17, 19}

C = {1, 2, 3, 5, 7, 11, 13, 17, 19, 23, 29}

D = {3, 5, 7}

E = {2, 3}

Solve:

( ( (A intersection B) – D ) unition E ) intersection C )

1. ( ( ({1, 2, 5, 7, 11, 13, 17, 19}) – D ) unition E ) intersection C )
2. ( ( ({1, 2, 5, 7, 11, 13, 17, 19}) – {3, 5, 7} ) unition E ) intersection C )
3. ( ( {1, 2, 11, 13, 17, 19} unition {2, 3} ) intersection C )
4. ( {1, 2, 3, 11, 13, 17, 19} intersection {1, 2, 3, 5, 7, 11, 13, 17, 19, 23, 29} )
5. {1, 2, 3, 11, 13, 17, 19}

Result:

{1, 2, 3, 11, 13, 17, 19}

## Ex. 1.8

The signature of the contains method should be

public boolean contains (String s)

{

// …

}

## Ex. 1.12

Diagram

Description automatically generated with medium confidence

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram, engineering drawing

Description automatically generated

## Ex. 1.13

Memory diagram as new ListItem objects are created.

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Tracing the values of listPointer as items are printed:

1. listPointer = first
2. listPointer = first.next
3. listPointer = first.next.next
4. listPointer = first.next.next.next
5. listPointer = first.next.next.next.next

Ex. 1.15

Draw list with actual memory addresses and the changing values of listPointer.

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated