Project 2  
COMP301 Spring 2023

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Part A.

(1)

-Syntax and data types

-Values

-Environment

-Behavior specification

-Behavior implementation

(2)

-Syntax: lang.rkt,

-Datatypes: data-structures.rkt

-Values: data-structures.rkt

-Environment:

-Definition: data-structures.rkt

-Related Procedures: environments.rkt

-Behavior specification: interp.rkt, constructors and observer (value-of)

-Behavior implementation: interp.rkt by value-of

Part B.

(1)

> (define init-env

(lambda ()

(extend-env

'x (num-val 1)

(extend-env

'y (num-val 2)

(extend-env

'z (num-val 3)

(empty-env))))))

(2)

> (define init-env

(lambda ()

(extend-env

'x (num-val 1)

(extend-env

'y (num-val 2)

(extend-env

'z (num-val 3)

[])))))

> (define init-env

(lambda ()

(extend-env

'x (num-val 1)

(extend-env

'y (num-val 2)

[z=3]))))

> (define init-env

(lambda ()

(extend-env

'x (num-val 1)

[y=2]

[z=3])))

> (define init-env

(lambda ()

[x=1]

[y=2]

[z=3]))

Part C.

- Expressed: number, boolean, string , list, pair

- Denoted: number, boolean, string , list, pair

Part D.

(1)*list\_exp*:

(2)*cons\_exp*:

(3)*sum\_exp*:

(4)*rational\_exp*:

(5)*op\_exp*:

(6)*simpl\_exp*:

Bonus.