pd2 hw21 2021-10-19 Ivan Chen
worked with no one; advised by no one

2. define the symbol penny

A. Symbol-processing steps

for `(define penny 27)` `; line 00`

Look for `penny` in the symbol table.

Since no slot named for `penny` exists, reserve a new slot named for `penny`, and use the new slot in the next steps.

Evaluate the expression `27`, resulting in the value twenty-seven

Store twenty-seven in the symbol table slot for `penny`.

for `(display penny)` `; line 01`

Look for `penny` in the symbol table.

Since a slot named for `penny` is found, replace `penny` with its value, 27, resulting in…

```
(display 27)
```

Put dots of light in the interactions window that that look like `27`

for `(display "\n")` `; line 02`

Add a newline at the end of the output.

B. resulting symbol table

symbol	value
Penny	27

C. output

`27` ↵

3. redefine the symbol `penny`

A. symbol-processing steps

for `(define penny 1)` `; line 04`

Look for *penny* in the symbol table.

Since a slot named for *penny* exists, re-use that slot in the next steps.
Evaluate the expression *1* resulting in the value one
Store one in the symbol table slot for *penny*, overwriting the original value of twenty-seven.

for `(display penny)` `; line 05`

Look for *penny* in the symbol table.
Since a slot named for *penny* is found, replace *penny* with its value, 1, resulting in…
(display 1)
Put dots of light in the interactions window that that look like 1

for `(display "\n")` `; line 06`

Add a new line at the end of the output.

B. resulting symbol table

symbol	**value**
`penny`	1

C. output

```
27↵
1↵
```

4. `nickel` computed from `penny`

A. Processing steps

for `(define nickel` `; line 08`

Look for `penny` in the symbol table.

Since no slot named for `penny` exists, reserve a new slot named for `penny`, and use the new slot in the next steps.

for `(* penny 5)` `; line 09`

Evaluate the expression `(* penny 5)`, resulting in the value 5

for `)` `; line 10`

Store five in the symbol table slot for `nickel`.

for `(display nickel)` `; line 11`

Look for *penny* in the symbol table.
Since a slot named for *penny* is found, replace *penny* with its value, 5, resulting in…
(display 5)
Put dots of light in the interactions window that that look like 5

for `(display "\n")` `; line 12`

Add a new line at the end of the output.

B. resulting symbol table

symbol	value
`Penny`	1
`Nickel`	5

C. output

```
27↵
1↵

5↵
```

5. `define penny` using `penny`?

A. Processing steps

for `(define penny` `; line 14`

Look for `penny` in the symbol table.

Since no slot named for `penny` exists, reserve a new slot named for `penny`, and use the new slot in the next steps.

for `(+ penny 7)` `; line 15`

Evaluate the expression `(+ penny 7)`, resulting in the value 8

for `)` `; line 16`

Store 8 in the symbol table slot for `nickel`.

for `(display penny)` `; line 17`

Look for *penny* in the symbol table.
Since a slot named for *penny* is found, replace *penny* with its value, 8, resulting in…
(display 8)
Put dots of light in the interactions window that that look like 8

B. resulting symbol table

symbol	value
`Penny`	8
`Nickel`	5

C. output

`27`↵

`1`↵

`5`↵

`8`↵

6. effect on `nickel`

A. Processing steps

for `(display "  nickel: ")  ; line 19`

Put dots of light in the interactions window that that look like ^^nickel:^

for `(display nickel)  ; line 20`

Look for *nickel* in the symbol table.
Since a slot named for *nickel* is found, replace *penny* with its value, 5, resulting in…
(display 5)
Put dots of light in the interactions window that that look like 5

B. resulting symbol table

symbol	value
`Penny`	8
`Nickle`	5

C. output

27↵

1↵

5↵

8↵

nickel: 5↵