



3.1415

|               |         |
|---------------|---------|
| id:           | 63      |
| kind:         | DBL_VAL |
| data.int_val: |         |
| data.dbl_val: | 3.1415  |
| data.txt_val: |         |

|       |
|-------|
| 10.0  |
| -5    |
| 17.21 |
| 25.1  |

|               |         |
|---------------|---------|
| id:           | 2       |
| kind:         | TXT_VAL |
| data.int_val: |         |
| data.dbl_val: |         |
| data.txt_val: | Fred    |

?

INT\_VAL

73

```
Function: Read Row
-----
Returns: Row - a Row with data read from the user
Parameters:
1: next_id (Integer) - the id of the row to be read
Local Variables:
*: line (String - 16 characters) - the text read from the user
Steps:
1: Set result's id to next_id
2: Output "Enter value: " to the Terminal
3: Read text entered by user into line
4: If line is an integer
5:   set result's data's Int Val to the integer value in line
6:   set result's kind to INT_VAL
7: Else if line is a double
8:   set result's data's Dbl Val to the double value in line
9:   set result's kind to DBL_VAL
10: Else
11:   set result's data's Txt Val to the text in line
12:   set result's kind to TXT_VAL
13: Output "Stored in row with id ", and result's id
14: Return the result
```

How can the code access values on the heap?

Func or Proc

val: 5

Instruction: Step 2

```
Procedure: Main
-----
Local Variables:
*: db_data (array containing 3 Row values)
*: i (Integer) -
Steps:
1: for i loops over each element in db_data
2:   set db_data[i] to result of calling Read Row(i)
3: ...
```

Values on the stack are directly accessible by the code

You need a means to refer to the space allocated on the heap...

