

Our project team consists of five members, each responsible for a distinct subset of the deliverables.

Team Member	Assigned Deliverables
Ahmet Emir Benlice 83657	Part A, B, C
Selin Ünal 83408	Part D steps 1-2-3
Enes Talha Günay 83960	Part D steps 6-7-8, remaining implementations
Ece Göncü 79603	Part D steps 4-5

Part A.

The 5 components of the language:

- 1) Answer
- 2) Interpreter
- 3) Syntax tree
- 4) Front end
- 5) Program text

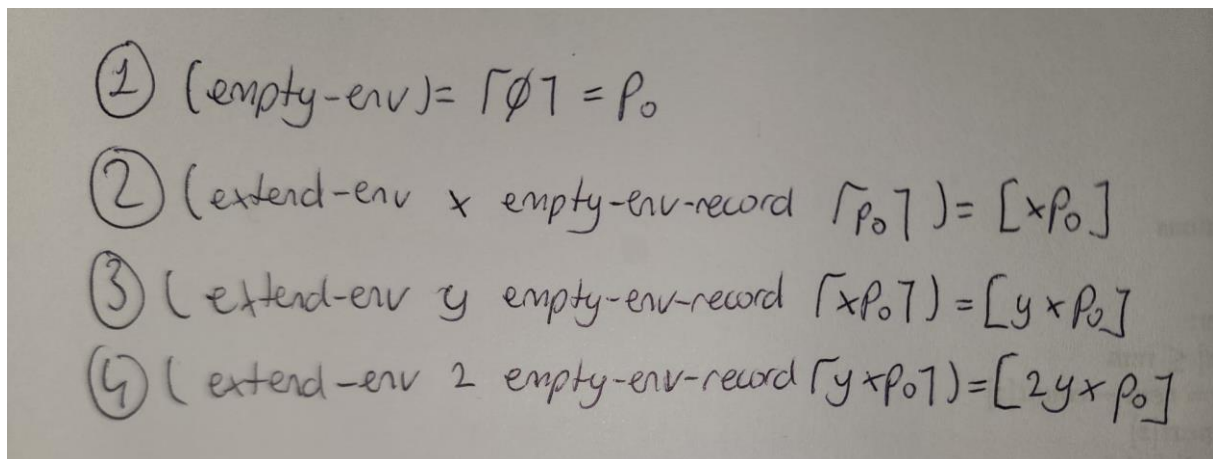
The first 3 components (Program Text, Front End, and Syntax tree) correspond to lang.rkt, interpret.rkt has the code for Interpreter, and Answer doesnt match any of the files.

Part B

(1) [in environments.rkt]

```
(extend-env  
  'z (num-val 3)  
  (extend-env  
    'y (num-val 2)  
    (extend-env  
      'x (num-val 4)  
      (empty-env))))
```

(2)



Handwritten mathematical definitions for environment functions:

- ① $(\text{empty-env}) = \lceil \emptyset \rceil = \rho_0$
- ② $(\text{extend-env } x \text{ empty-env-record } \lceil \rho_0 \rceil) = [x \rho_0]$
- ③ $(\text{extend-env } y \text{ empty-env-record } \lceil x \rho_0 \rceil) = [y \ x \rho_0]$
- ④ $(\text{extend-env } z \text{ empty-env-record } \lceil y \ x \rho_0 \rceil) = [z \ y \ x \rho_0]$

(3)

Procedural representation —each environment is a function which takes argument, value, and the old environment.

Part C

Denoted values \rightarrow the set of values that can be assigned to variables in the language.

Expressed values \rightarrow the set of possible values expressions can take.

In MYLET:

- Denoted values = Numbers + Lists + Boolean
- Expressed values = Numbers + Lists + Boolean