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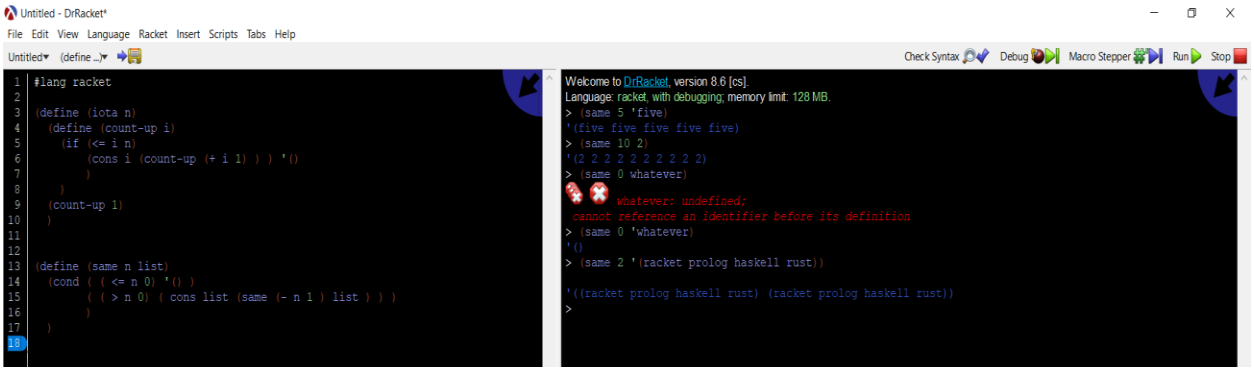
CSC 344 Programming Languages

Assignment 5: RLP and HoFs

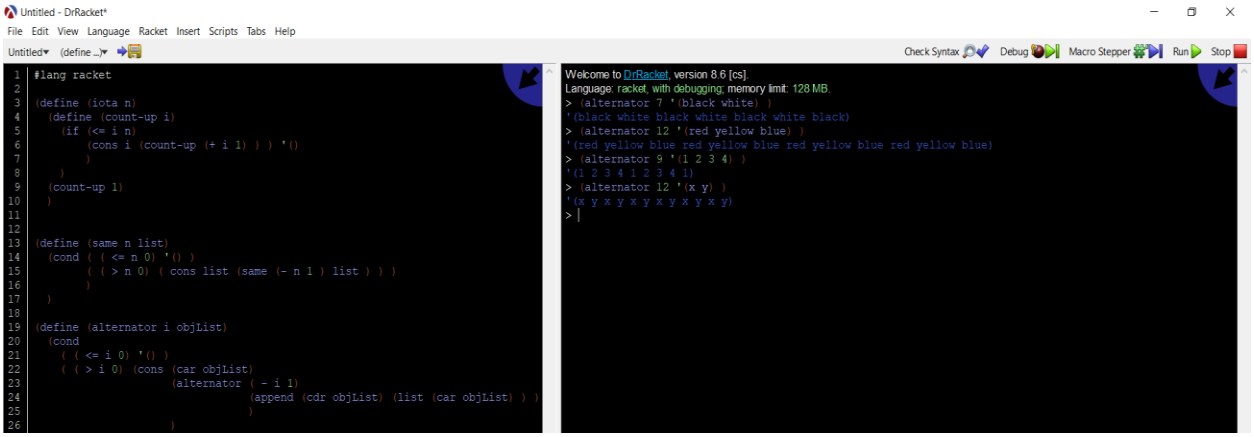
Abstract: This assignment introduces us to RLP and HoFs in Racket Programming language. In this assignment I was able to gain a basic understanding of these concepts as this project opened my eyes and helped me appreciate the power of RLP and HoFs as well as helped me improve my problem solving/programming skills.

Task 1A Code and Demo:

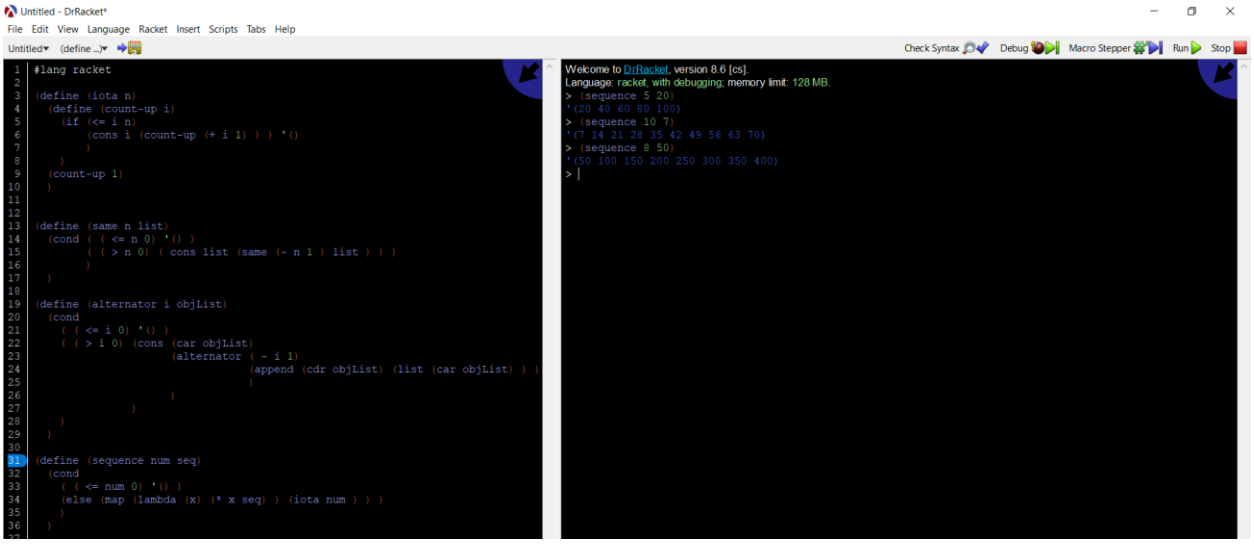
Task 1B Code and Demo:



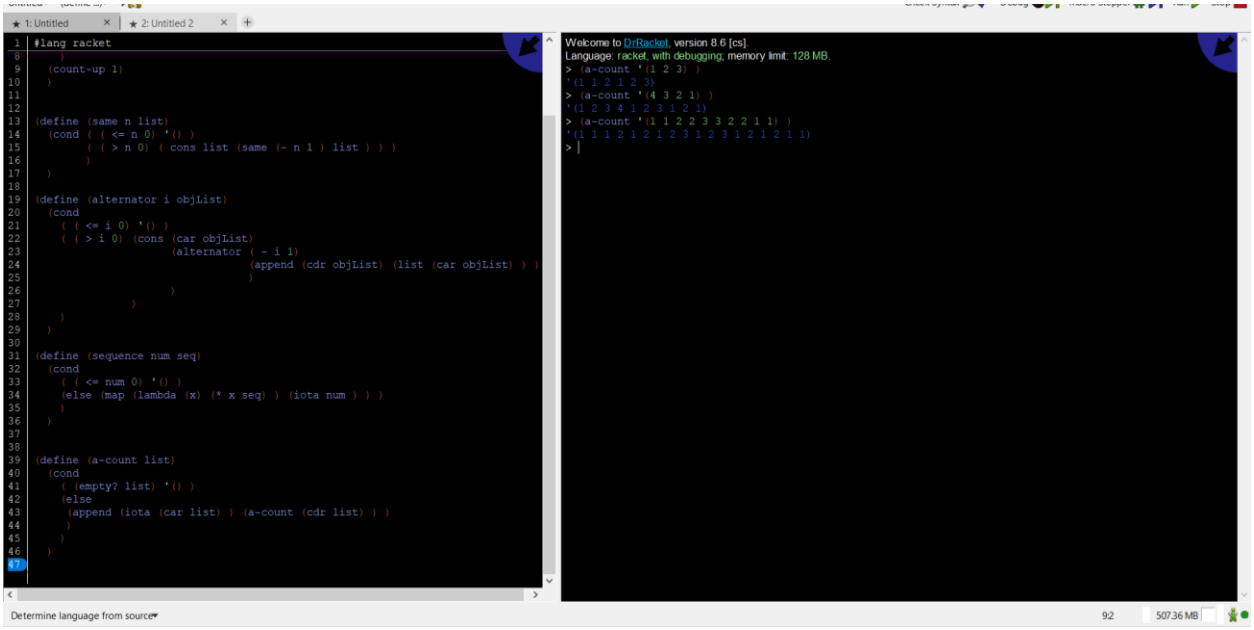
Task 1C Code and Demo:



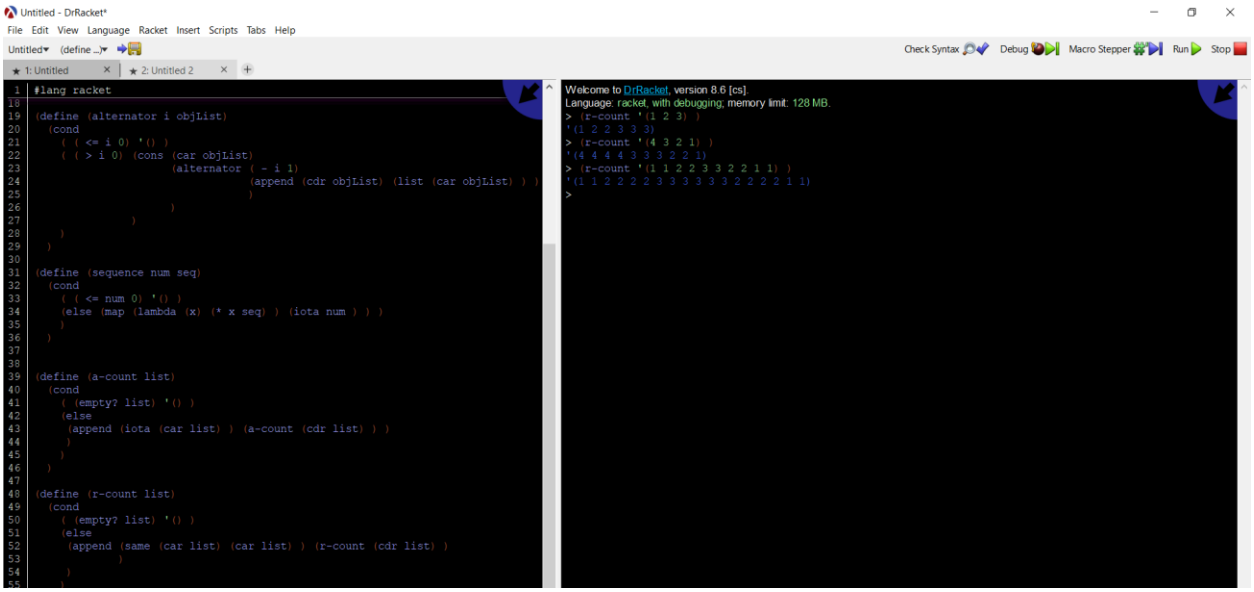
Task 1D Code and Demo:



Task 2 Counting and Task 2A Code and Demo:

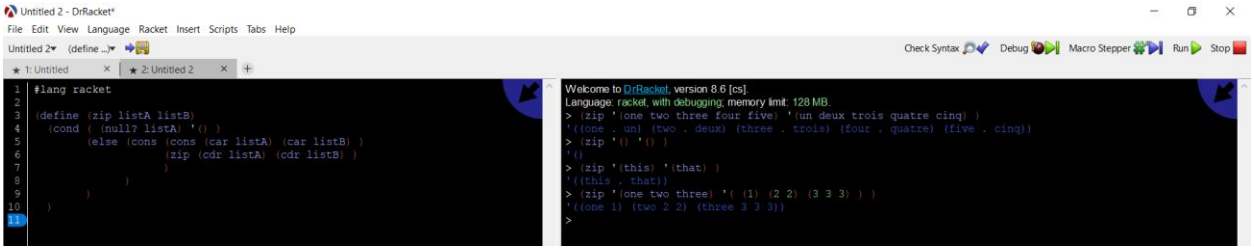


Task 2B Code and Demo:

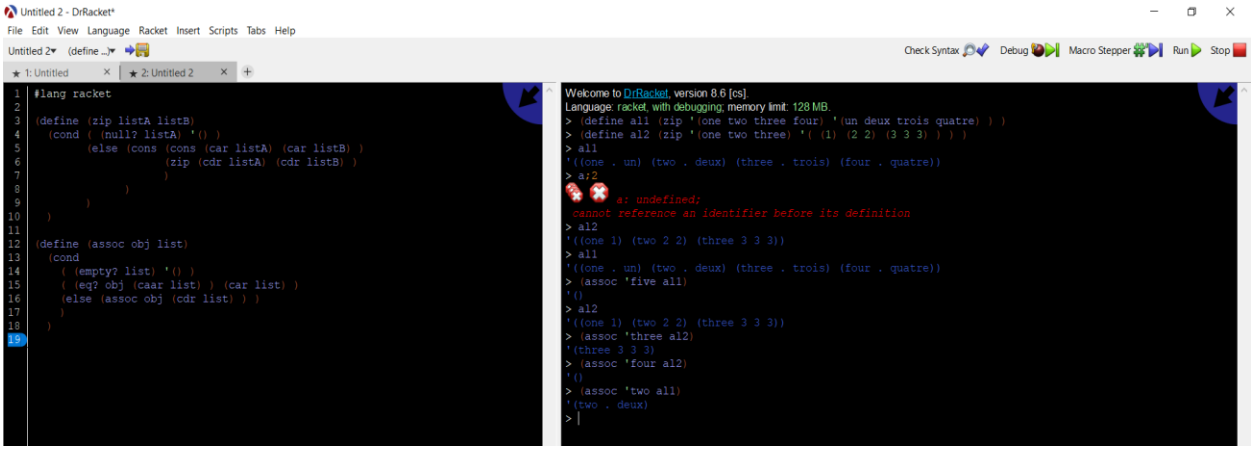


Task 2C Demo:

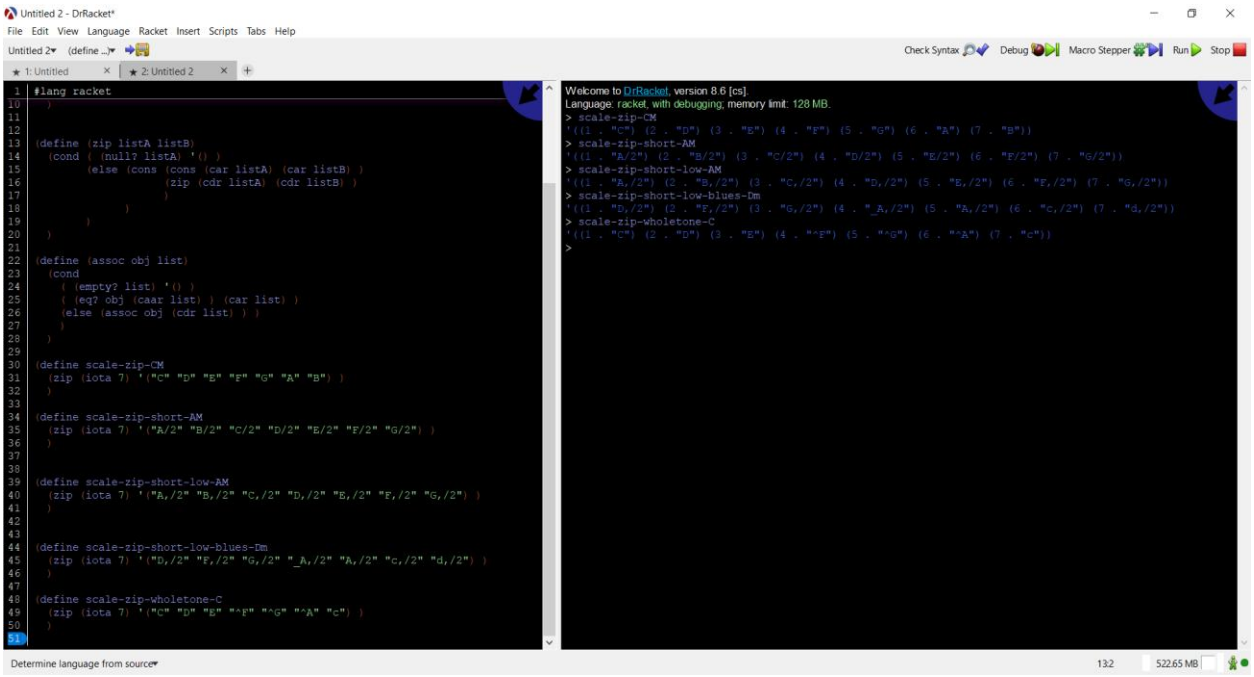
Task 3 Association List and Task 3A Code and Demo:



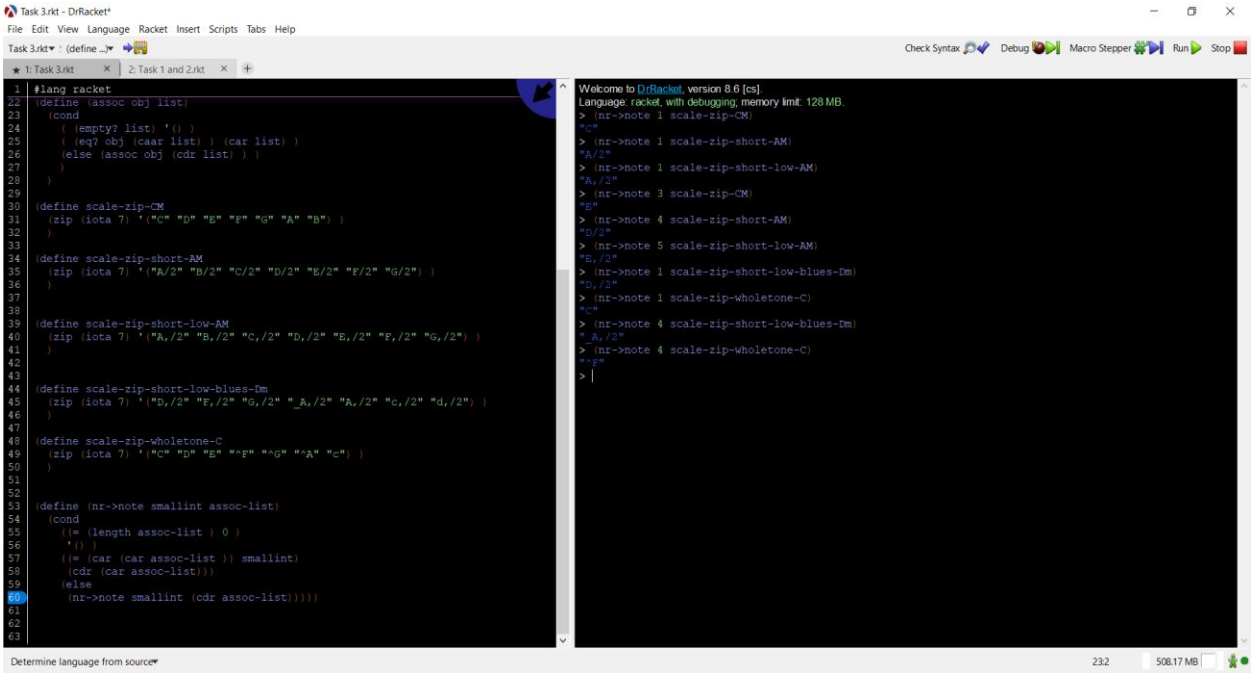
Task 3B Code and Demo:



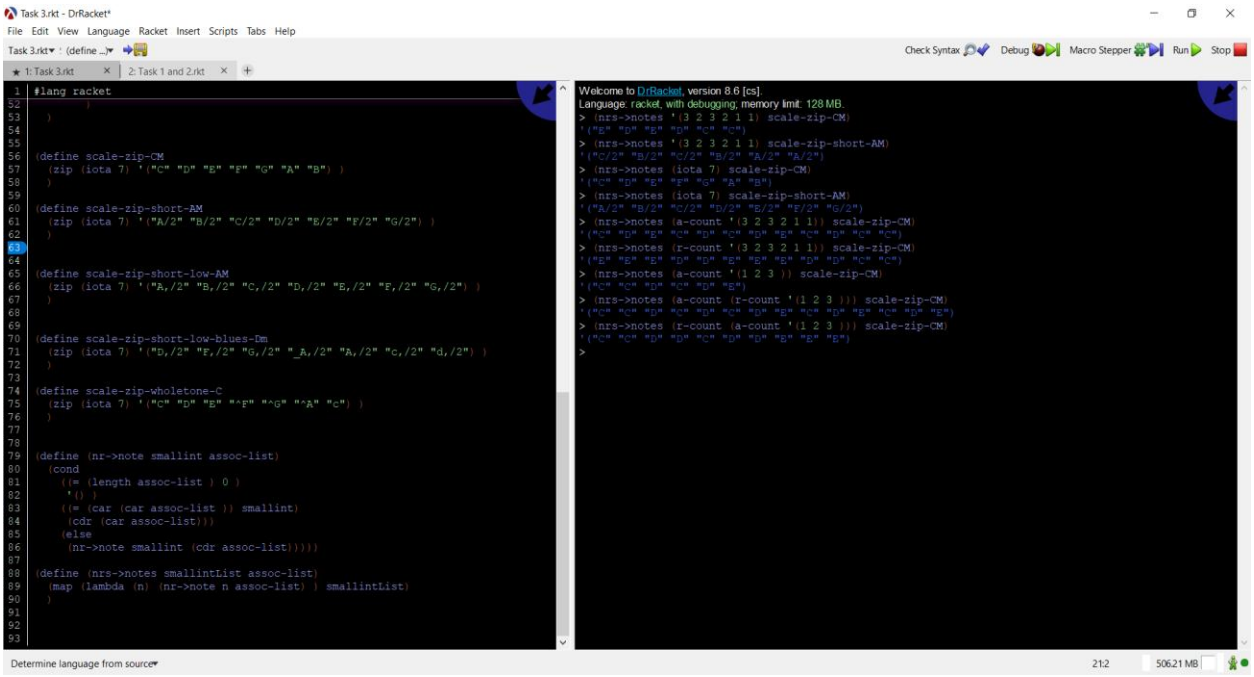
Task 3C Code and Demo:

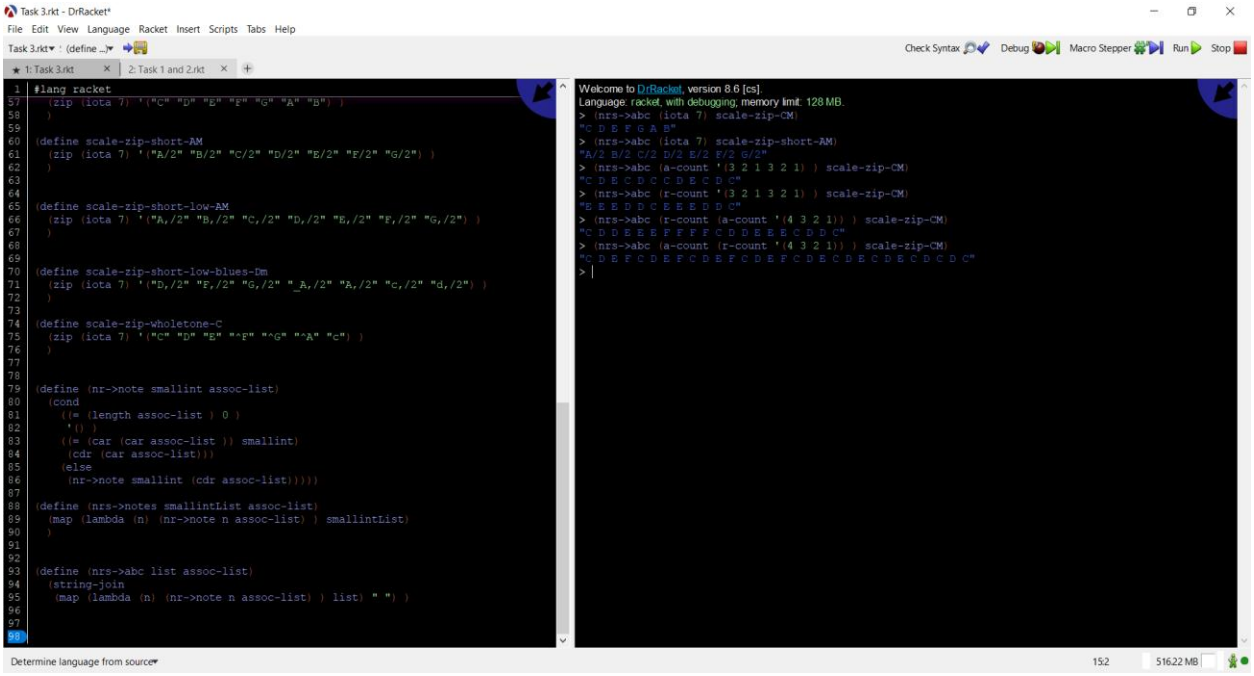


Task 4 Numbers to Notes to ABC and Task 4A Code and Demo:

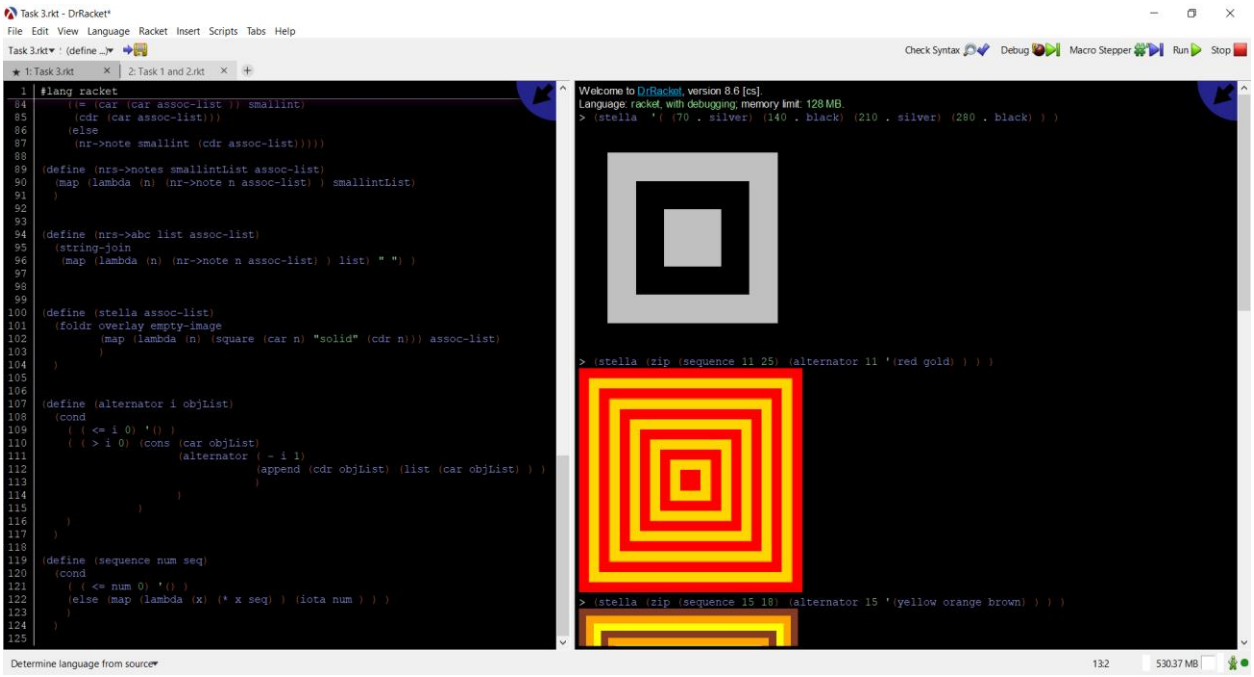


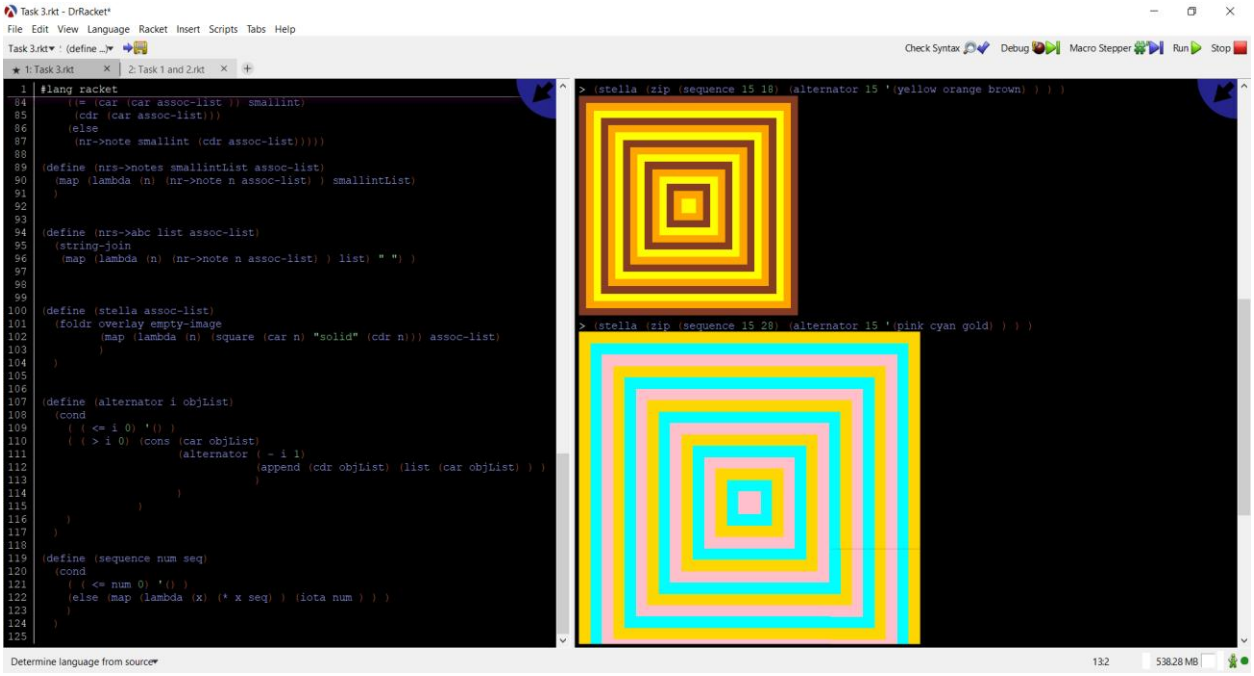
Task 4B and C Code and Demo:

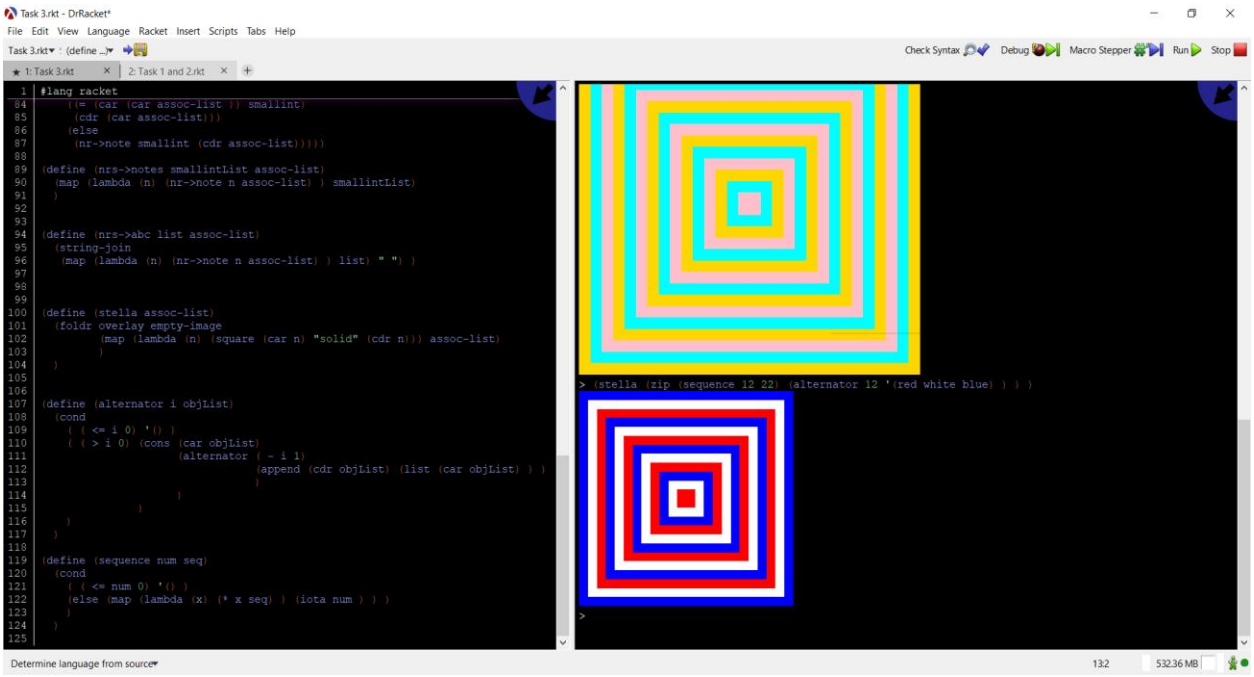




Task 5 Stella Code and Demo:

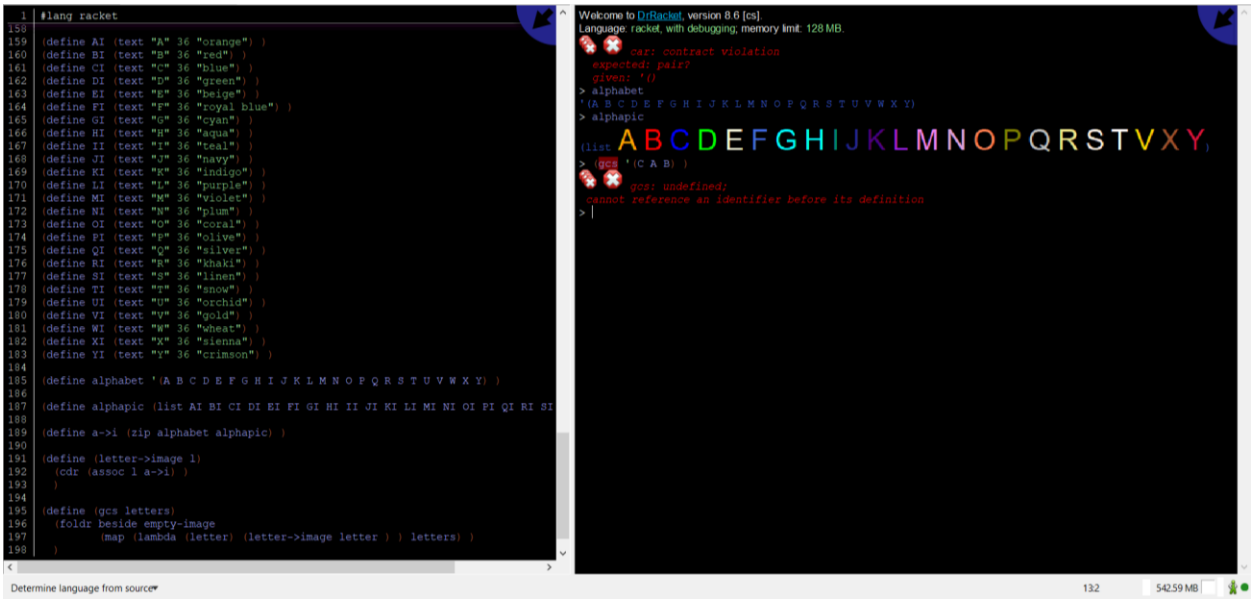

Task 3.rkt - DrRacket*
File Edit View Language Racket Insert Scripts Tabs Help
Check Syntax
Debug
Macro Stepper
Run
Stop
1: Task 3.rkt
2: Task 1 and 2.rkt
#lang racket
Welcome to DrRacket, version 8.6 [cs].
Language: racket, with debugging, memory limit: 128 MB.
> (stella '((70 . silver) (140 . black) (210 . silver) (280 . black)))
> (stella (zip (sequence 11 25) (alternator 11 '(red gold))))
> (stella (zip (sequence 15 18) (alternator 15 '(yellow orange brown))))
Determine language from source
13:2
530.37 MB


Task 3.rkt - DrRacket*
File Edit View Language Racket Insert Scripts Tabs Help
Check Syntax
Debug
Macro Stepper
Run
Stop
1: Task 3.rkt
2: Task 1 and 2.rkt
#lang racket
> (stella (zip (sequence 15 18) (alternator 15 '(yellow orange brown))))
> (stella (zip (sequence 15 28) (alternator 15 '(pink cyan gold))))
Determine language from source
13:2
538.28 MB



Task 6 Chromesthic Renderings TaskA Code and Demo:

Task 7 Grapheme to Color Synesthesia, Code and Demo:


#lang racket
(define AI (text "A" 36 "orange"))
(define BI (text "B" 36 "red"))
(define CI (text "C" 36 "blue"))
(define DI (text "D" 36 "green"))
(define EI (text "E" 36 "beige"))
(define FI (text "F" 36 "royal blue"))
(define GI (text "G" 36 "cyan"))
(define HI (text "H" 36 "aqua"))
(define II (text "I" 36 "teal"))
(define JI (text "J" 36 "navy"))
(define KI (text "K" 36 "indigo"))
(define LI (text "L" 36 "purple"))
(define MI (text "M" 36 "violet"))
(define NI (text "N" 36 "plum"))
(define OI (text "O" 36 "coral"))
(define PI (text "P" 36 "olive"))
(define QI (text "Q" 36 "silver"))
(define RI (text "R" 36 "khaki"))
(define SI (text "S" 36 "linen"))
(define TI (text "T" 36 "snow"))
(define UI (text "U" 36 "orchid"))
(define VI (text "V" 36 "gold"))
(define WI (text "W" 36 "wheat"))
(define XI (text "X" 36 "sienna"))
(define YI (text "Y" 36 "crimson"))
(define alphabet '(A B C D E F G H I J K L M N O P Q R S T U V W X Y))
(define alphapic (list AI BI CI DI EI FI GI HI II JI KI LI MI NI OI PI QI RI SI
(define a->i (zip alphabet alphapic))
(define (letter->image l)
(cdr (assoc l a->i))
)
(define (gcs letters)
(foldr beside empty-image
(map (lambda (letter) (letter->image letter)) letters))
)
Welcome to DrRacket, version 8.6 [cs].
Language: racket, with debugging; memory limit: 128 MB.
car: contract violation
expected: pair?
given: '()
> alphabet
'(A B C D E F G H I J K L M N O P Q R S T U V W X Y)
> alphapic
(list A B C D E F G H I J K L M N O P Q R S T V X Y)
> (gcs '(C A B))
gcs: undefined;
cannot reference an identifier before its definition
>
Determine language from source
13:2
542.59 MB