



Milestone 3: SeeGOL

(Shoyler's Extremely Experimental Graphical Operating Library)

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The Premise

(Recap)

In an alternative universe...



A monument to compromise



16-bit 8086



32-bit i386+
(with 16-bit Real Mode)

Project So Far

Stage 3: Graphics Library

- Significant progress has been made
- GL and Pane packages provide user-level graphics control
 - Driver-independent
- User has limited access to the hardware
 - + User has an easier time producing graphical entities
 - - User doesn't have as much control

Font Rendering

ABCDEFGHIJKLMNOPQRSTUVWXYZ 0123456789 .

NEWLINE TEST
NEWLINE TEST
NEWLINE TEST

WORD WRAP WORD WORD WRAP WORD WRAP WORD
WRAP WORD WRAP WORD WRAP WORD WORD WRA
P WORD WRAP WORD WRAP WORD WRAP

BIN 0 101010 HEX 0 2A WORDS WORD
S WORDS NEWLINE
WORDS WORDS

Panes



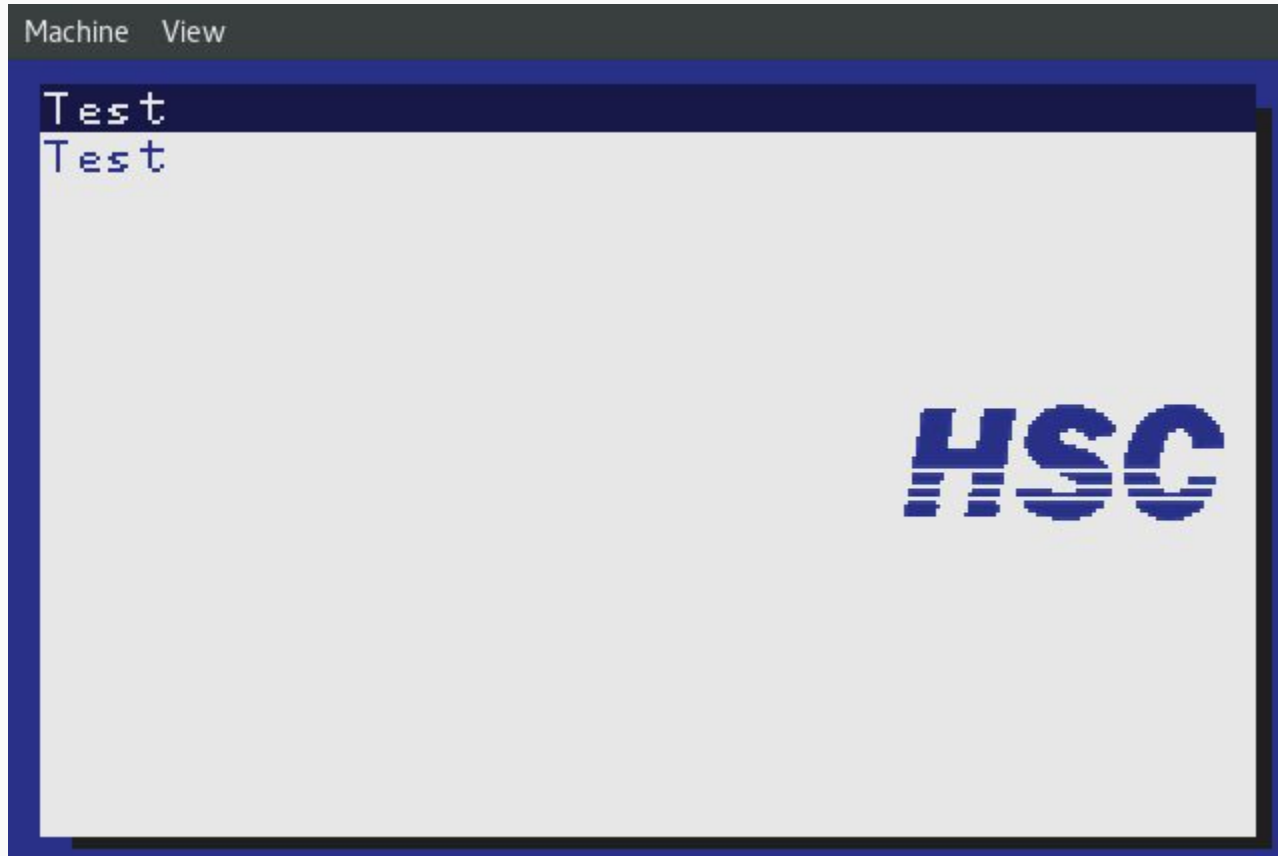
Panes

```
Machine  View
This is a test of the header bit at th
e top of the slide
The quick brown fox
```

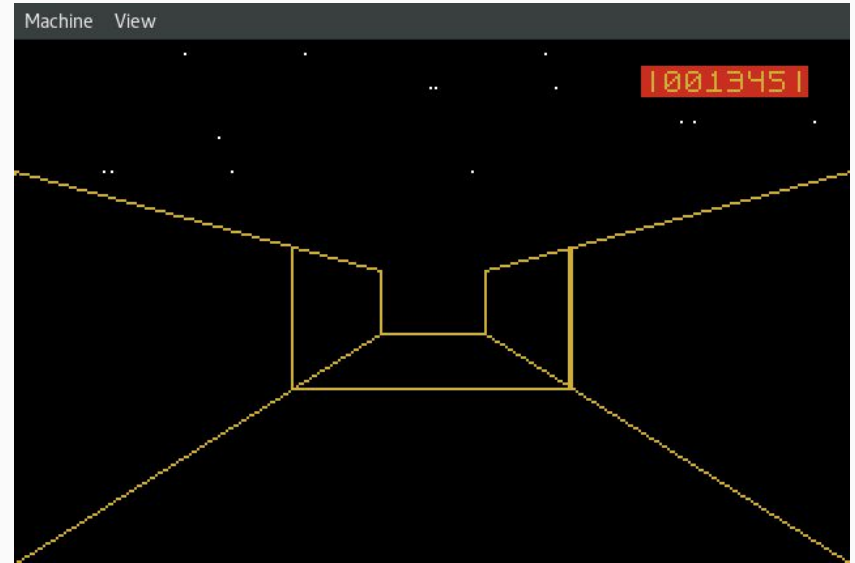
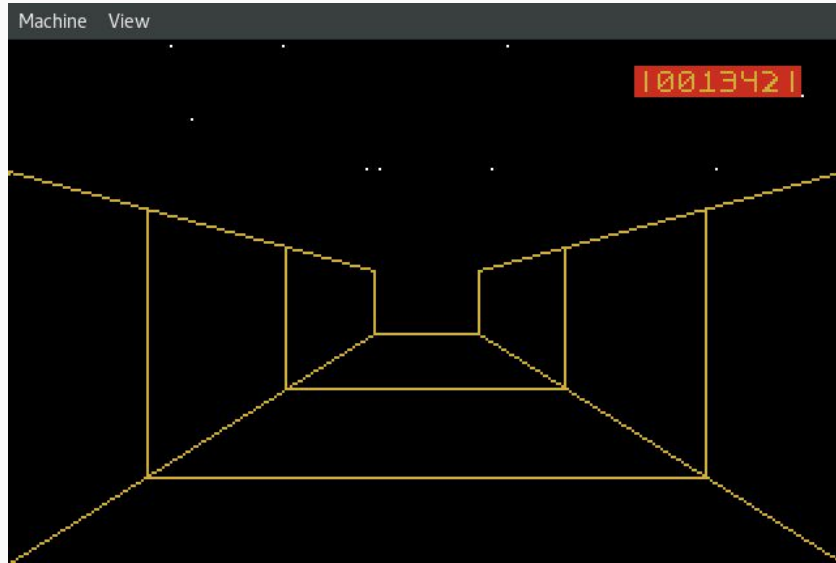
Panes



Panes



Procedurally Generated Line Drawing Example



Evolution of a Test Pattern

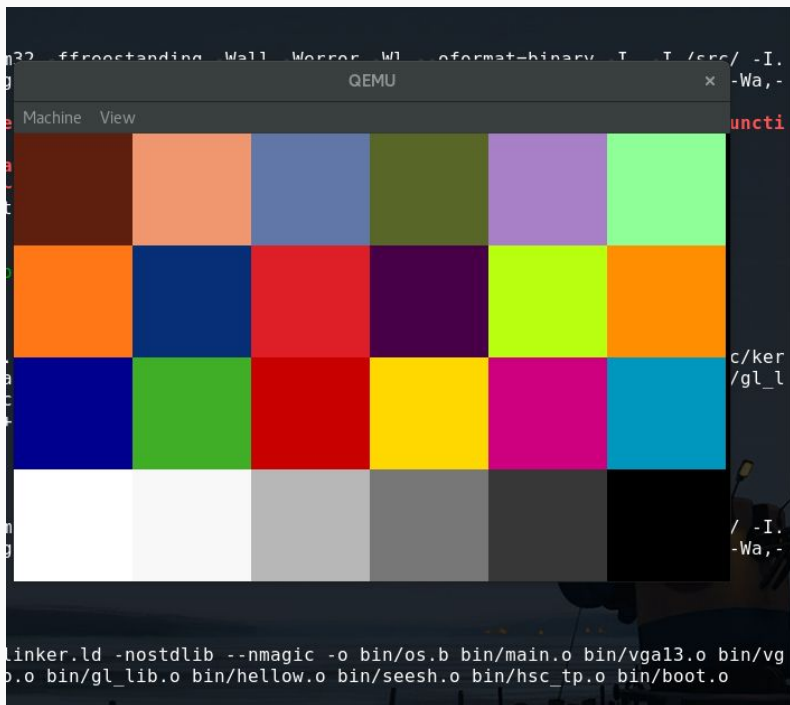
Original Test Image, Drawn with Rectangles



Adding Programmable VGA 13 Color Palette



Macbeth Color Chart Comparison



www.Rags-Int-Inc.com

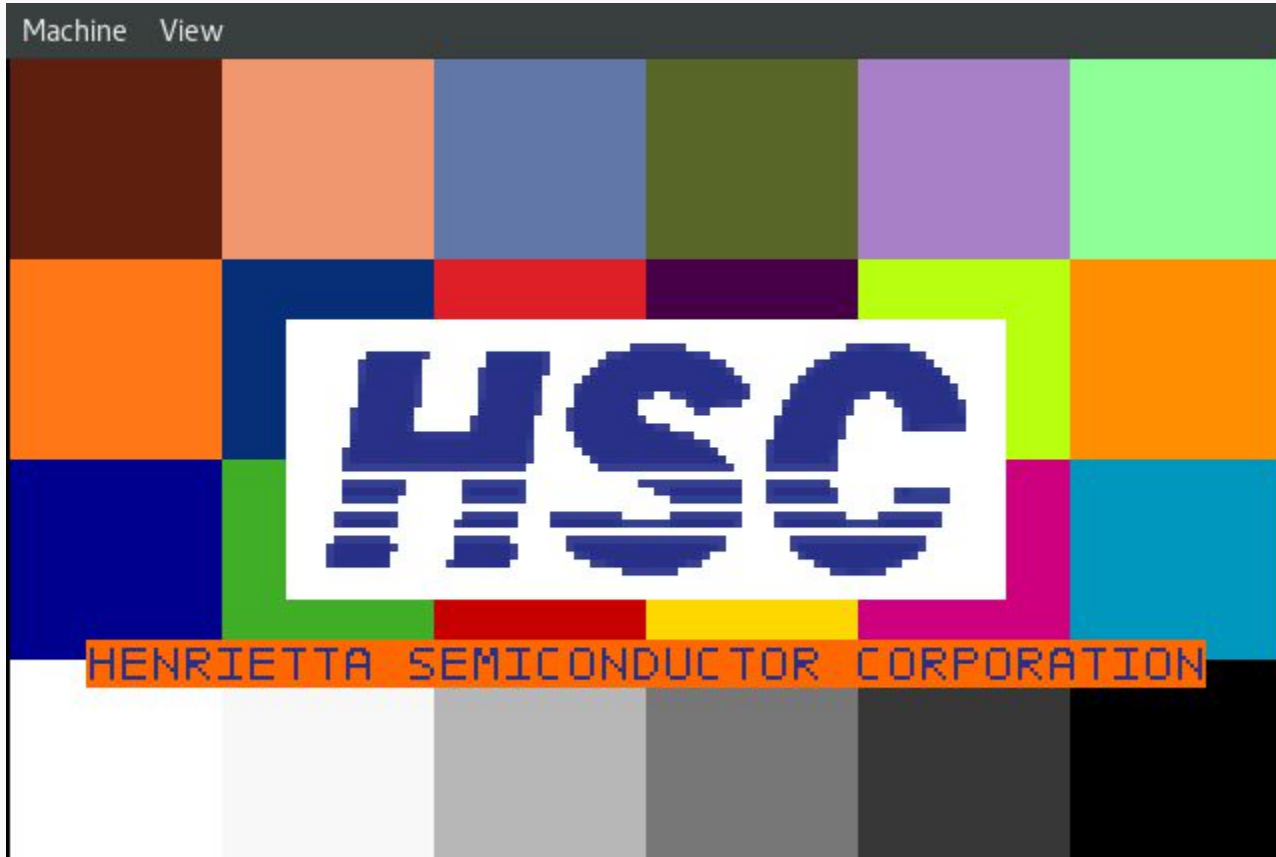
94.28.13 11° 86% 37% 01 Dark Skin	241.148.108 18° 55% 95% 02 Light Skin	97.119.171 222° 43% 67% 03 Blue Sky	90.103.39 72° 62% 40% 04 Foliage	164.131.196 270° 33% 77% 05 Blue Flower	140.253.153 127° 46% 99% 06 Bluish Green
255.116.21 24° 92% 100% 07 Orange	7.47.122 219° 94% 48% 08 Purplish Blue	222.29.42 356° 87% 87% 09 Moderate Red	69.0.68 301° 100% 27% 10 Purple	187.255.19 77° 93% 100% 11 Yellow Green	255.142.0 33° 100% 100% 12 Orange Yellow
0.0.142 240° 100% 56% 13 Blue	64.173.38 108° 78% 68% 14 Green	203.0.0 0° 100% 80% 15 Red	255.217.0 51° 100% 100% 16 Yellow	207.3.124 324° 99% 81% 17 Magenta	0.148.189 193° 100% 74% 18 Cyan
255.255.255 0° 0% 100% 19 White	249.249.249 0° 0% 98% 20 Neutral 8	180.180.180 0° 0% 71% 21 Neutral 6.5	117.117.117 0° 0% 46% 22 Neutral 5	53.53.53 0° 0% 21% 23 Neutral 3.5	0.0.0 0° 0% 0% 24 Black

Numeric color values from Macbeth reference chart Adobe RGB 1998

Adding Text Rendering



Adding Image Rendering



Sources

- [1] Image content comes from freely available online resources
- [2] Diagrams and Code Snippets by Schuyler Martin
- [3] HSC Logo created by Kailey Martin
- [4] List of resources that were deemed helpful while making this project:
<https://github.com/schuylermartin45/seegol/blob/master/docs/links.txt>

Special Thanks

[1] Prof. Warren Carithers - Advisor

Warren, taught me almost everything I know about Systems Programming and Computer Graphics. Without him, none of this would be possible.

[2] Prof. Sean Strout - Mentor

Sean is a close friend of mine and initially sparked a lot of my interest in becoming a C wizard.

[3] Prof. Thomas Kinsman - Mentor

Thomas has taught me how to think creatively with visual problems

Questions?

Project available at <https://github.com/schuylermartin45/seegol>