CS 349 — User Interfaces

Kevin James

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Contents

1 Vector UI

We can use multiplicative vectors to translate, shift, or rotate our objects. The important vectors are as follows:

- the **translation matrix** is $\begin{bmatrix} 1 & 0 & t_x \\ 0 & 1 & t_y \\ 0 & 0 & 1 \end{bmatrix}$

- the **scaling matrix** is $\begin{bmatrix} s_x & 0 & 0 \\ 0 & s_y & 0 \\ 0 & 0 & 1 \end{bmatrix}$

- the **rotation matrix** is $\begin{bmatrix} \cos\Theta & \sin\Theta & 0 \\ \sin\Theta & \cos\Theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$