

# Animation

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# Use of Animation

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- Visually stimulating way of showing how objects move or change as time progresses.
- Can be used to show progression in algorithms, etc.

# Basics of Animation

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- Updating the location or display of an object as it changes.
- Updates visual periodically, but pauses to allow a viewer to observe each image

# Different Methods of Animation

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- Swing Timer: works similar to a thread; however, is less reliable.
- Multithreading: Each object being animated has a separate thread; the algorithm for animating can also be a separate thread

# Flicker

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- Occurs because graphic window is still updating while the monitor refreshes
- Methods to reduce flicker include overriding `update()`, if using an applet, and double buffering

# Overriding Update()

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- `update()` is used by default only in applets
- `update()` automatically clears the screen and then calls `paint()` to draw the next frame
- By overriding this method, one can keep the entire image from disappearing at every update (effective for backgrounds)
- In applications, `paint()` and `paintComponent()` clear the screen

# Double Buffering

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- Painting the image off-screen before use, then moving the completed image on-screen
- `setDoubleBuffer(true)` for Swing components