skunkworks

Pull To Refresh ListView on Android

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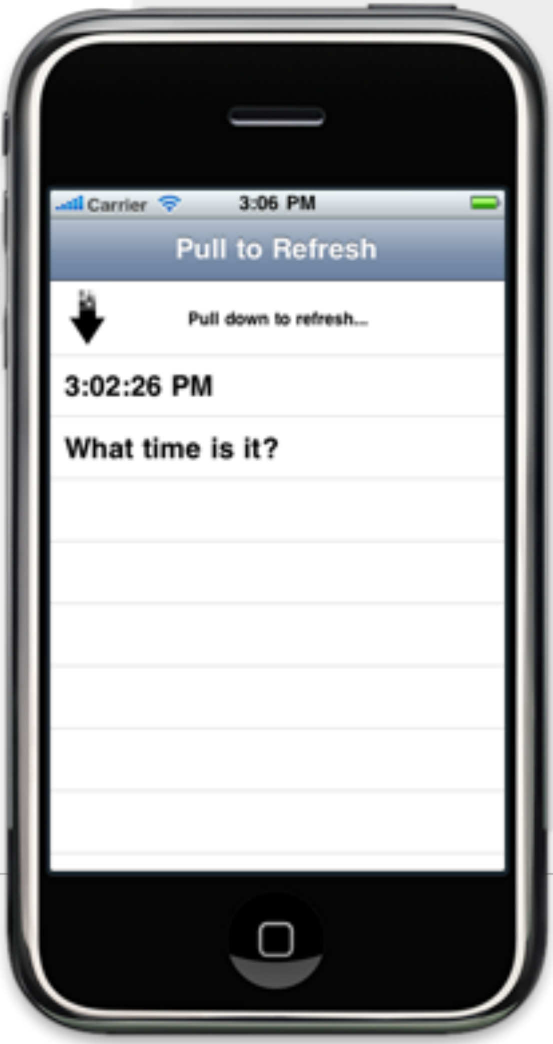
What is "Pull to refresh"?



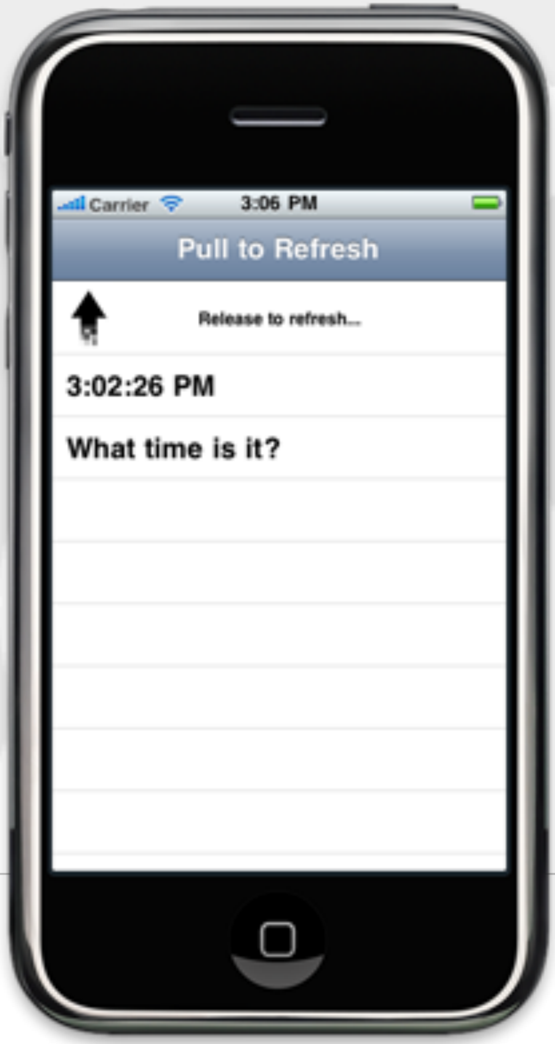
Carrier 3:06 PM

Pull to Refresh

Pull down to refresh...

3:02:26 PM

What time is it?



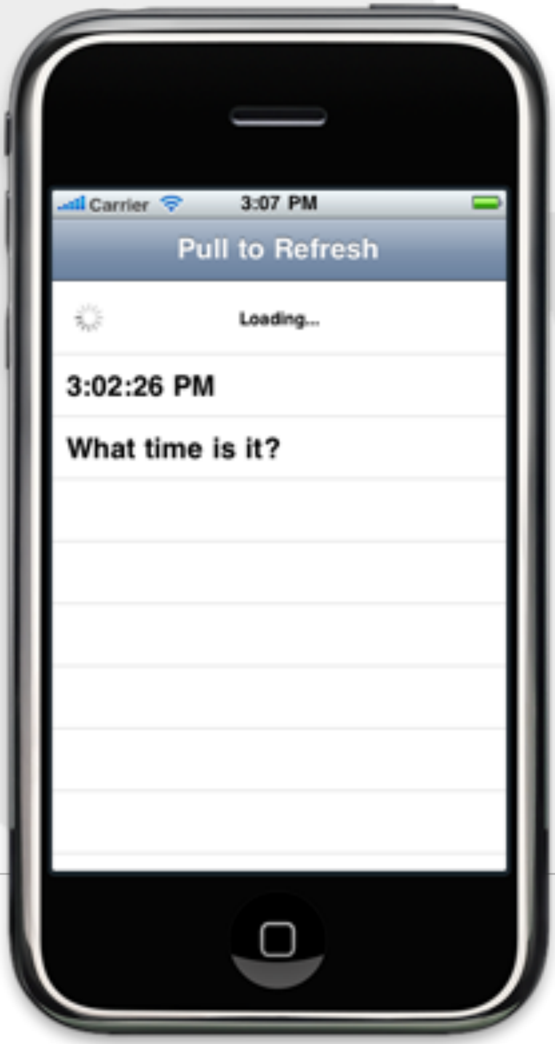
Carrier 3:06 PM

Pull to Refresh

Release to refresh...

3:02:26 PM

What time is it?



Carrier 3:07 PM

Pull to Refresh

Loading...

3:02:26 PM

What time is it?

How to make it?

1. Interaction

- Pull the list
- Release the list
- Animation

- OnTouchListener
- OnTouchListener
- Interpolator

2. Data

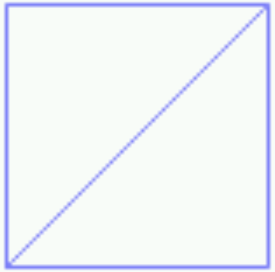
- Asynchronous background task

- AsyncTask

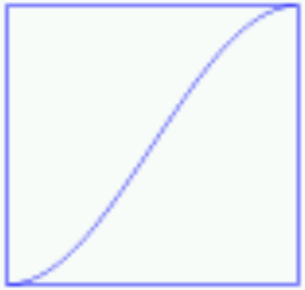
Capture touch event

```
private class DragWhenTouchListener implements OnTouchListener {
    public boolean onTouch(View v, MotionEvent event) {
        switch (event.getAction()) {
        case MotionEvent.ACTION_DOWN:
            break;
        case MotionEvent.ACTION_MOVE:
            break;
        case MotionEvent.ACTION_CANCEL:
            break;
        case MotionEvent.ACTION_OUTSIDE:
            break;
        case MotionEvent.ACTION_UP:
            break;
        }
    }
}
```

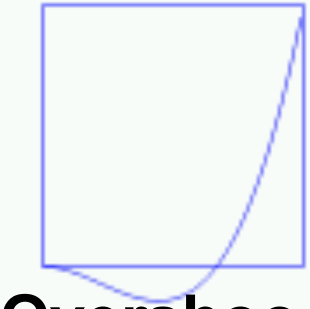
Interpolator - What?



Linear



Anticipate



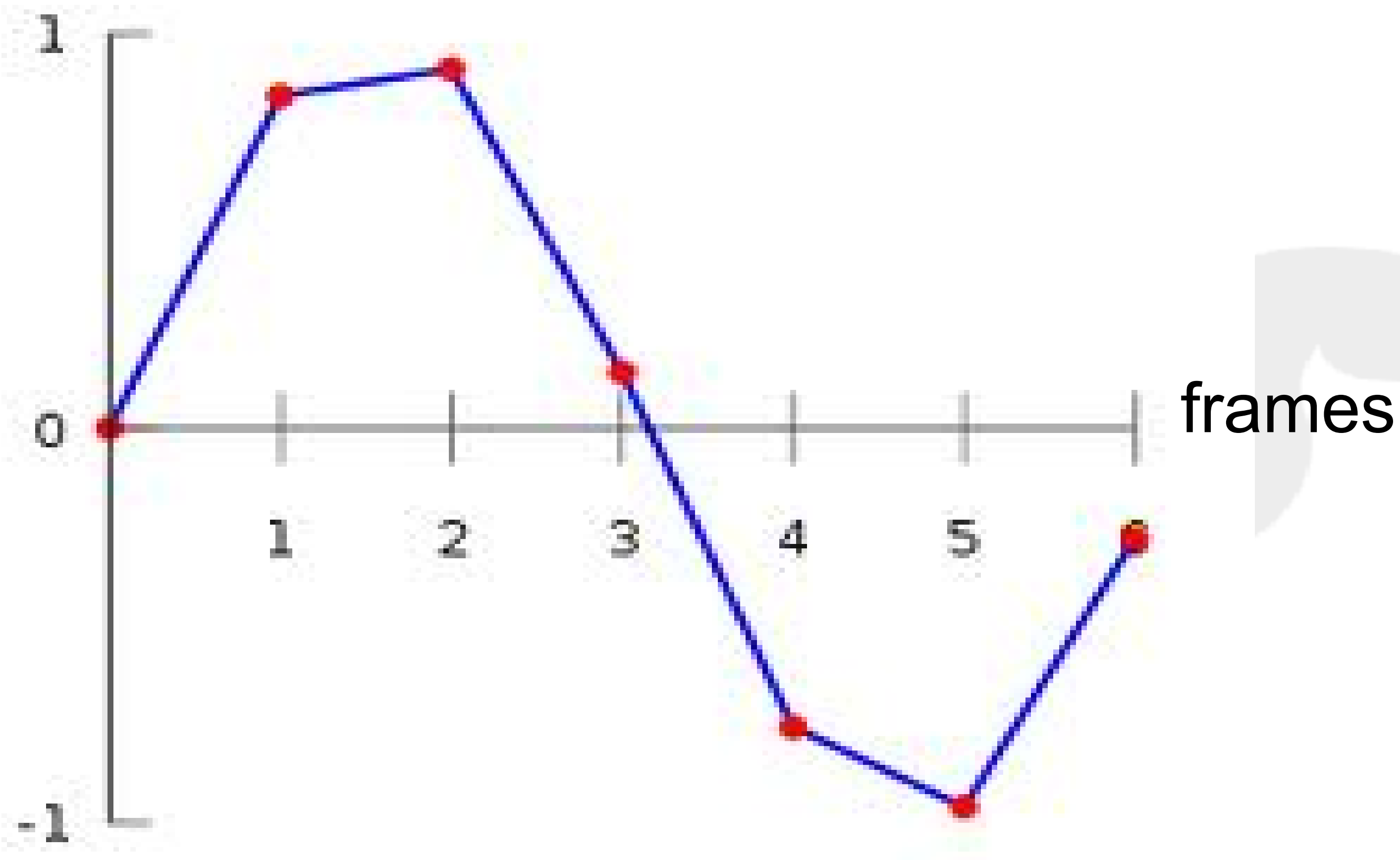
Overshoo
t

Anticipate interpolator:

```
//  0 <= t <= 1
public float getInterpolation (float t) {
          return t * t * ((tension + 1) * t - tension);
}
```

Interpolator - How?

ListView offset



Duration = 200 miliseconds

Implementation

```
private void initFlingState() {
    mStep = 0;
    mStepMax = getFramesToPosition(DURATION);
    mStartPosition = -getScrollY(); // position of the scroller
    // ....
    mStopPosition = -mRefreshViewHeight;
}


private int getFramesToPosition(int duration) {
    int frames = duration / INTERVAL;
    return frames;
}
```

Implementation

```
private int getNextPosition() {
    float progress = mStep / mStepMax;
    int position = 0;
    if (mStopPosition < mStartPosition) {
        position = mStartPosition
                - (Math.abs(mStopPosition - mStartPosition)
                * getInterpolation(progress));
    } else {
        position = mStartPosition
                + (Math.abs(mStopPosition - mStartPosition)
                * getInterpolation(progress));
    }
    mStep++;
    return position;
}
```

Implementation

```
private Handler mHandler = new Handler() {
    @Override
    public void handleMessage(android.os.Message msg) {
        switch (msg.what) {
        case MSG_FLING_TO_DESTINATION:
            // jump to the next position
            scrollTo(0, -getNextPosition());
            if (mStep <= mStepMax) {
                // continue jumping to the another next position
                sendEmptyMessageDelayed(
                         MSG_FLING_TO_DESTINATION,
                         INTERVAL);
            } else {
                // arrive the destination, what's next?
            }
            break;
        }
    }
};
```

Demo

- Project: **PullToRefreshListView**
- License: Apache 2.0

Source code: **http://projects.bkitmobile.com/pull_to_refresh_listview/**

Thank You!

@rockerhieu

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