



```
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Initialize UI components
        quoteText = findViewById(R.id.quoteText);
        generateButton = findViewById(R.id.generateButton);
        quoteCounter = findViewById(R.id.quoteCounter);
        waveView = findViewById(R.id.waveView);

        // Initialize quotes list
        quotes = new ArrayList<>();
        quotes.add("The best way to predict the future is to invent it. - Alan Kay");
        quotes.add("Code is like humor. When you have to explain it, it's bad. - Cory House");
        quotes.add("Simplicity is the soul of efficiency. - Austin Freeman");
        quotes.add("First, solve the problem. Then, write the code. - John Johnson");
        quotes.add("Experience is the name everyone gives to their mistakes. - Oscar Wilde");
    }

    // Set button click listener
    // @Override
    @SuppressWarnings
    public void GenerateRandomQuote(View view) {
        int index = random.nextInt(quotes.size());
        String randomQuote = quotes.get(index);
        quoteCount++; // Increment quote counter

        // Update the quote counter text
        quoteCounter.setText("Quotes Generated: " + quoteCount);

        // Change background color randomly
        int newColor = colors[random.nextInt(colors.length)];
        findViewById(R.id.main).setBackgroundColor(newColor);

        // Apply typing effect
        applyTypingEffect(randomQuote);

        // Animate the wave on new quote
        animateWave();
    }
}
```

```
private void applyTypingEffect(final String fullText) {
    final Handler handler = new Handler();
    final int delay = 50; // Typing speed (ms)
    quoteText.setText(""); // Clear previous text

    for (int i = 0; i < fullText.length(); i++) {
        final int finalI = i;
        handler.postDelayed(new Runnable() {
            @Override
            public void run() {
                quoteText.append(String.valueOf(fullText.charAt(finalI)));
            }
        }, delayMillis: delay * i);
    }
}

// Usage
private void animateWave() {
    // Move up/down
    ObjectAnimator translateY = ObjectAnimator.ofFloat(waveView, propertyName: "translationY", values: 0f, 20f, 0f);
    translateY.setDuration(1500);
    translateY.setInterpolator(new LinearInterpolator());
    translateY.setRepeatCount(ValueAnimator.INFINITE);
    translateY.setRepeatMode(ValueAnimator.REVERSE);

    // Slight horizontal sway
    ObjectAnimator translateX = ObjectAnimator.ofFloat(waveView, propertyName: "translationX", values: 0f, 10f, 0f, -10f, 0f);
    translateX.setDuration(3000); // Slower side-to-side cycle
    translateX.setInterpolator(new LinearInterpolator());
    translateX.setRepeatCount(ValueAnimator.INFINITE);
    translateX.setRepeatMode(ValueAnimator.REVERSE);

    // Play both animations together
    AnimatorSet animatorSet = new AnimatorSet();
    animatorSet.playTogether(translateY, translateX);
    animatorSet.start();
}
```

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<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#121212"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/waveView"
        android:layout_width="match_parent"
        android:layout_height="120dp"
        android:rotation="180"
        android:scaleType="fitXY"
        android:adjustViewBounds="true"
        android:src="@drawable/wave_shape"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/quoteText"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:text="Tap the button for a quote!"
        android:textSize="22sp"
        android:textColor="#FFFFFF"
        android:gravity="center"
        android:textStyle="italic"
        android:padding="16dp"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintBottom_toTopOf="@+id/generateButton"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent" />

```

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<View
    android:id="@+id/divider"
    android:layout_width="200dp"
    android:layout_height="2dp"
    android:background="#42E71D"
    app:layout_constraintTop_toBottomOf="@id/quoteText"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    android:layout_marginTop="10dp" />

<TextView
    android:id="@+id/quoteCounter"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Quotes Generated: 0"
    android:textSize="16sp"
    android:textColor="#AAAAAA"
    android:gravity="center"
    app:layout_constraintTop_toBottomOf="@+id/divider"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    android:layout_marginTop="10dp" />

<Button
    android:id="@+id/generateButton"
    android:layout_width="200dp"
    android:layout_height="wrap_content"
    android:text="Generate Quote"
    android:textSize="18sp"
    android:textColor="#121212"
    android:padding="10dp"
    android:layout_marginTop="20dp"
    android:layout_marginBottom="50dp"
    android:gravity="center"
    android:stateListAnimator="@android:anim/slide_in_left"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    android:onClick="GenerateRandomQuote" />

```

## Reflection:

I had some free time so I made it look a bit nicer. I like how these labs can be as easy or difficult as you want them to be. I Also think these labs could be a very good resume project if they were more related, so at the end of the course we would have a medium sized project. That alone could qualify everyone for way more jobs than we currently are qualified for.