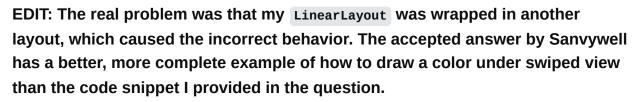
Adding a colored background with text/icon under swiped row when using Android's RecyclerView

Asked 9 years, 6 months ago Modified 3 years, 4 months ago Viewed 34k times





36







Now that <u>RecyclerView</u> widget has native support for row swiping with the help of <u>ItemTouchHelper</u> class, I'm attempting to use it in an app where rows will behave similarly to Google's Inbox app. That is, swiping to the left side performs one action and swiping to the right does another.

Implementing the actions themselves was easy using ItemTouchHelper.SimpleCallback's onswiped method. However, I was unable to find a simple way to set color and icon that should appear under the view that's currently being swiped (like in Google's Inbox app).

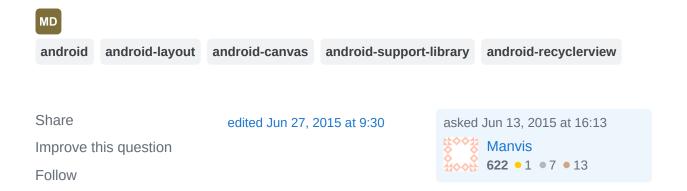
To do that, I'm trying to override ItemTouchHelper.SimpleCallback's onchildDraw method like this:

```
@Override
public void onChildDraw(Canvas c, RecyclerView recyclerView,
                        RecyclerView.ViewHolder viewHolder, float dX, float dY,
                        int actionState, boolean isCurrentlyActive) {
    RecyclerViewAdapter.ViewHolder vh = (RecyclerViewAdapter.ViewHolder)
viewHolder;
    LinearLayout ll = vh.linearLayout;
    Paint p = new Paint();
    if(dX > 0) {
        p.setARGB(255, 255, 0, 0);
    } else {
        p.setARGB(255, 0, 255, 0);
    c.drawRect(ll.getLeft(), ll.getTop(), ll.getRight(), ll.getBottom(), p);
    super.onChildDraw(c, recyclerView, viewHolder, dX, dY, actionState,
isCurrentlyActive);
}
```

Determining the swipe direction from dX and setting the appropriate color works as intended, but the coordinates I get from the <code>viewHolder</code> always correspond to the

place where the first LinearLayout was inflated.

How do I get the correct coordinates for the LinearLayout that's in the currently swiped row? Is there an easier way (that doesn't require to override onchildDraw) to set the background color and icon?



8 Answers





I was struggling to implement this feature as well, but you steered me in the right direction.











```
@Override
public void onChildDraw(Canvas c, RecyclerView recyclerView,
RecyclerView.ViewHolder viewHolder, float dX, float dY, int actionState,
boolean isCurrentlyActive) {
    if (actionState == ItemTouchHelper.ACTION_STATE_SWIPE) {
       // Get RecyclerView item from the ViewHolder
       View itemView = viewHolder.itemView;
       Paint p = new Paint();
       if (dX > 0) {
            /* Set your color for positive displacement */
            // Draw Rect with varying right side, equal to displacement dX
            c.drawRect((float) itemView.getLeft(), (float) itemView.getTop(),
dX,
                    (float) itemView.getBottom(), p);
       } else {
           /* Set your color for negative displacement */
            // Draw Rect with varying left side, equal to the item's right side
plus negative displacement dX
            c.drawRect((float) itemView.getRight() + dX, (float)
itemView.getTop(),
                    (float) itemView.getRight(), (float) itemView.getBottom(),
p);
       }
        super.onChildDraw(c, recyclerView, viewHolder, dX, dY, actionState,
isCurrentlyActive);
}
```

15 You should generally avoid instantiating objects in onDraw methods. That can impact performance due to number of times onDraw methods are called. You should probably cache the paint object instead of creating it every time anew. From the docs: "Creating objects ahead of time is an important optimization. Views are redrawn very frequently, and many drawing objects require expensive initialization. Creating drawing objects within your onDraw() method significantly reduces performance and can make your UI appear sluggish."

developer.android.com/training/custom-views/custom-drawing.html − Nemanja Kovacevic Jan 8, 2016 at 22:46

**

The code for dX > 0 needs to add the getLeft() value to dX to correctly handle padding on the RecyclerView c.drawRect((float) itemView.getLeft(), (float) itemView.getTop(), itemView.getLeft() + dX, (float) itemView.getBottom(), p); – Andrew Kelly May 31, 2016 at 6:29

@Sanvywell wouldn't it be a good idea to call super.onChildDraw first? – Willi Mentzel Feb 3, 2017 at 21:33

@WilliMentzel This solution works by itself, but will not allow for icons and a color background. In order to achieve both I used the implementation outlined here: medium.com/@kitek/... – AdamHurwitz Aug 31, 2018 at 1:02



The accepted answer does a great job of coloring the background, but did not address drawing the icon.





This worked for me because it both set the background color and drew the icon, without the icon being stretched during the swipe, or leaving a gap between the previous and next items after the swipe.



```
R.drawable.myleftdrawable);
            /* Set your color for positive displacement */
            p.setARGB(255, 255, 0, 0);
            // Draw Rect with varying right side, equal to displacement dX
            c.drawRect((float) itemView.getLeft(), (float) itemView.getTop(),
dX,
                    (float) itemView.getBottom(), p);
            // Set the image icon for Right swipe
            c.drawBitmap(icon,
                    (float) itemView.getLeft() + convertDpToPx(16),
                    (float) itemView.getTop() + ((float) itemView.getBottom() -
(float) itemView.getTop() - icon.getHeight())/2,
                    p);
        } else {
            icon = BitmapFactory.decodeResource(
                    ApplicationManager.getContext().getResources(),
R.drawable.myrightdrawable);
            /* Set your color for negative displacement */
            p.setARGB(255, 0, 255, 0);
            // Draw Rect with varying left side, equal to the item's right side
            // plus negative displacement dX
            c.drawRect((float) itemView.getRight() + dX, (float)
itemView.getTop(),
                    (float) itemView.getRight(), (float) itemView.getBottom(),
p);
            //Set the image icon for Left swipe
            c.drawBitmap(icon,
                    (float) itemView.getRight() - convertDpToPx(16) -
icon.getWidth(),
                    (float) itemView.getTop() + ((float) itemView.getBottom() -
(float) itemView.getTop() - icon.getHeight())/2,
                    p);
        }
        // Fade out the view as it is swiped out of the parent's bounds
        final float alpha = ALPHA_FULL - Math.abs(dX) / (float)
viewHolder.itemView.getWidth();
        viewHolder.itemView.setAlpha(alpha);
        viewHolder.itemView.setTranslationX(dX);
    } else {
        super.onChildDraw(c, recyclerView, viewHolder, dX, dY, actionState,
isCurrentlyActive);
    }
}
private int convertDpToPx(int dp){
    return Math.round(dp * (getResources().getDisplayMetrics().xdpi /
DisplayMetrics.DENSITY_DEFAULT));
```

1 how to add click listener on these icons ? Like gmail app – user4774371 Nov 16, 2015 at 9:59

@penguin There is a discussion on just this topic here stackoverflow.com/questions/6845129/.... If you need to be able to interact with the underlying elements, you are probably better served by creating a view underneath the swiped element. — HappyKatz Nov 17, 2015 at 8:07

Hello, what is here the value of your ALPHA_FULL variable? – Saif Bechan Jun 23, 2016 at 12:29

@SaifBechan final float ALPHA_FULL = 1.0f; – AndroidRuntimeException Jun 23, 2016 at 13:59

2 @HappyKatz i'm using recyclerView.getContext() to get Context without using external methods. – MatPag ♀ Aug 24, 2016 at 9:46



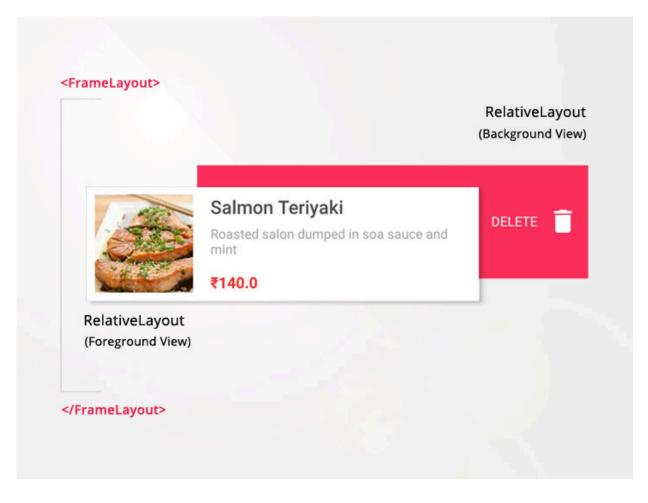
Here's how I do it without 3rd party library.

15

The foreground view will be always visible in the recycler view, and when swipe is performed the background will be visible staying in a static position.







Create your custom RecyclerView item and add your custom icon, text and background color to the background layout of item. Notice that I put an id to RelativeLayout With id=foreground and id=background.

Here's mine recylerview_item.xml.

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"</pre>
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:orientation="vertical">
    <RelativeLayout
        android:id="@+id/background"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:background="@color/colorPrimary"> <!--Add your background color</pre>
here-->
        <ImageView</pre>
            android:id="@+id/delete_icon"
            android: layout_width="30dp"
            android: layout_height="30dp"
            android:layout_alignParentRight="true"
            android: layout_centerVertical="true"
            android: layout marginRight="10dp"
            app:srcCompat="@drawable/ic_delete"/>
        <TextView
            android:layout_width="wrap_content"
            android: layout_height="wrap_content"
            android: layout_centerVertical="true"
            android:layout_marginRight="10dp"
            android:layout_toLeftOf="@id/delete_icon"
            android:text="Swipe to delete"
            android:textColor="#fff"
            android:textSize="13dp" />
    </RelativeLayout>
    <RelativeLayout
        android:padding="20dp"
        android:id="@+id/foreground"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="@color/colorWhite">
            <TextView
                android:id="@+id/textView"
                android:text="HelloWorld"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content" />
    </RelativeLayout>
</FrameLayout>
```

and from your ViewHolder define your RelativeLayout foreground and background view and make it public. Also create a method that will remove the item. In my case my ViewHolder is under my RecyclerViewAdapter.class, SO...

```
public class RecyclerViewAdapter extends
RecyclerView.Adapter<RecyclerViewAdapter.ViewHolder> {
   List<Object> listItem;
   public RecyclerViewAdapter(...) {
   }
   @Override
   public ViewHolder onCreateViewHolder(ViewGroup parent, int viewType) {
        View view = mInflater.inflate(R.layout.recyclerview_item, parent,
false);
        return new ViewHolder(view);
   }
   @Override
   public void onBindViewHolder(final ViewHolder holder, int position) {
   }
   @Override
   public int getItemCount() {
   }
   public class ViewHolder extends RecyclerView.ViewHolder{
        public RelativeLayout foreground, background;
        public ViewHolder(View itemView) {
            super(itemView);
            /** define your foreground and background **/
            foreground = itemView.findViewById(R.id.foreground);
            background = itemView.findViewById(R.id.background);
        }
   }
   /**Call this later to remove the item on swipe**/
   public void removeItem(int position){
        //remove the item here
        listItem.remove(position);
        notifyItemRemoved(position);
   }
}
```

And create a class and name it RecyclerItemTouchHelper.class, this is where swipe thing will happen.

```
public class RecyclerItemTouchHelper extends ItemTouchHelper.SimpleCallback {
    private RecyclerItemTouchHelperListener listener;
    public RecyclerItemTouchHelper(int dragDirs, int swipeDirs,
RecyclerItemTouchHelperListener listener) {
        super(dragDirs, swipeDirs);
        this.listener = listener;
    }
    @Override
    public boolean onMove(@NonNull RecyclerView recyclerView, @NonNull
RecyclerView.ViewHolder viewHolder, @NonNull RecyclerView.ViewHolder target) {
        return true;
    }
    @Override
    public void onSelectedChanged(RecyclerView.ViewHolder viewHolder, int
actionState) {
        if (viewHolder != null) {
            final View foregroundView = ((RecyclerViewAdapter.ViewHolder)
viewHolder).foreground;
            getDefaultUIUtil().onSelected(foregroundView);
        }
    }
    @Override
    public void onChildDrawOver(Canvas c, RecyclerView recyclerView,
                                RecyclerView.ViewHolder viewHolder, float dX,
float dY,
                                int actionState, boolean isCurrentlyActive) {
        final View foregroundView = ((RecyclerViewAdapter.ViewHolder)
viewHolder).foreground;
        getDefaultUIUtil().onDrawOver(c, recyclerView, foregroundView, dX, dY,
                actionState, isCurrentlyActive);
    }
    @Override
    public void clearView(RecyclerView recyclerView, RecyclerView.ViewHolder
viewHolder) {
        final View foregroundView = ((RecyclerViewAdapter.ViewHolder)
viewHolder).foreground;
        getDefaultUIUtil().clearView(foregroundView);
    }
    @Override
    public void onChildDraw(Canvas c, RecyclerView recyclerView,
                            RecyclerView.ViewHolder viewHolder, float dX, float
dY,
                            int actionState, boolean isCurrentlyActive) {
        final View foregroundView = ((RecyclerViewAdapter.ViewHolder)
viewHolder).foreground;
        getDefaultUIUtil().onDraw(c, recyclerView, foregroundView, dX, dY,
                actionState, isCurrentlyActive);
    }
    @Override
    public void onSwiped(@NonNull RecyclerView.ViewHolder viewHolder, int
direction) {
        listener.onSwiped(viewHolder, direction,
```

```
viewHolder.getAdapterPosition());
}

@Override
public int convertToAbsoluteDirection(int flags, int layoutDirection) {
    return super.convertToAbsoluteDirection(flags, layoutDirection);
}

public interface RecyclerItemTouchHelperListener {
    void onSwiped(RecyclerView.ViewHolder viewHolder, int direction, int position);
}
```

Now, from your MainActivity.class or wherever your RecyclerView is, attach the RecyclerItemTouchHelper into it. In my case the RecyclerView is in MainActivity.class SO I implemented RecyclerItemTouchHelper.RecyclerItemTouchHelperListener into it and override the method onSwiped()...

```
public class MainActivity extends AppCompatActivity implements
RecyclerItemTouchHelper.RecyclerItemTouchHelperListener {
    RecyclerView recyclerView;
   @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
       Toolbar toolbar = findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);
       //Configure RecyclerView
        recyclerView = (RecyclerView) findViewById(R.id.recyclerView);
       RecyclerView.LayoutManager mLyoutManager = new
LinearLayoutManager(getApplicationContext());
        recyclerView.setLayoutManager(mLyoutManager);
        recyclerView.setItemAnimator(new DefaultItemAnimator());
       adapter = new RecyclerViewAdapter(this);
       adapter.setClickListener(this);
        recyclerView.setAdapter(adapter);
        recyclerView.addItemDecoration(new
DividerItemDecoration(recyclerView.getContext(),
DividerItemDecoration.VERTICAL));
       //Attached the ItemTouchHelper
       ItemTouchHelper.SimpleCallback itemTouchHelperCallback = new
RecyclerItemTouchHelper(0, ItemTouchHelper.LEFT, this);
ItemTouchHelper(itemTouchHelperCallback).attachToRecyclerView(recyclerView);
    //define the method onSwiped()
   @Override
    public void onSwiped(RecyclerView.ViewHolder viewHolder, int direction, int
position) {
       if (viewHolder instanceof RecyclerViewAdapter.ViewHolder) {
```

```
adapter.removeItem(viewHolder.getAdapterPosition()); //remove the
item from the adapter
    }
}
```

For more information and clarification here is the blog for it.

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answered Jul 20, 2019 at 10:45



This is the best solution because this one also works properly if you swipe multiple items in a row fast. – Florian Walther Sep 28, 2020 at 17:56



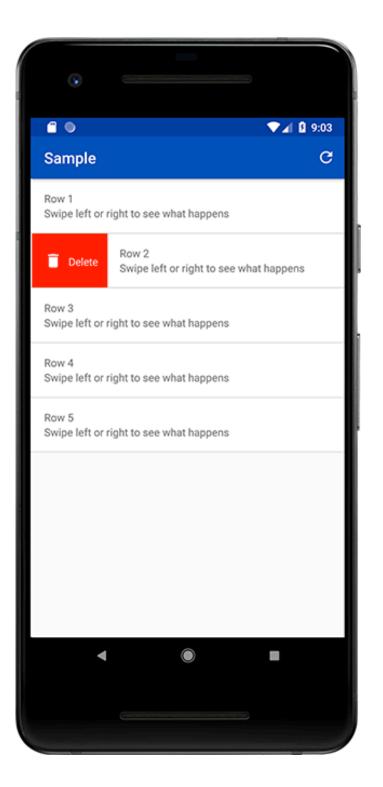
For people still finding this default, this is the simplest way.

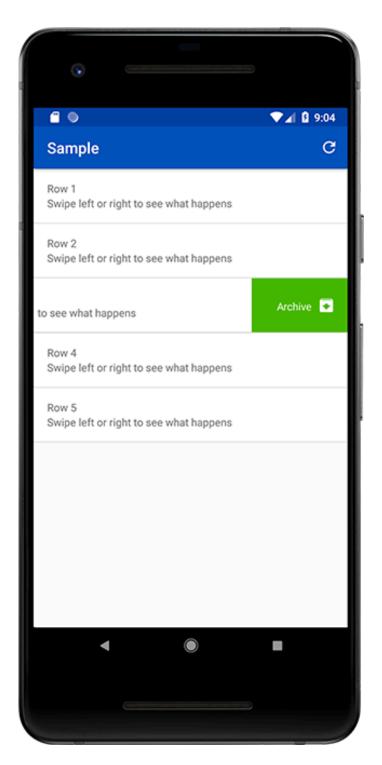
A simple utility class to add a background, an icon and a label to a RecyclerView item while swiping it left or right.











insert to Gradle

```
implementation 'it.xabaras.android:recyclerview-swipedecorator:1.1'
```

Override on Child Draw method of Item Touch Helper class

```
.create()
    .decorate();

super.onChildDraw(c, recyclerView, viewHolder, dX, dY, actionState,
isCurrentlyActive);
}
```

for more info -> https://github.com/xabaras/RecyclerViewSwipeDecorator

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I'm not sure how these solutions (by @Sanvywell, @HappyKatz and @user2410066) are working for you guys but in my case I needed another check in the onchildDraw method.



Looks like ItemTouchHelper keeps ViewHolder's of removed rows in case they need to be restored. It's also calling onchildDraw for those VHs in addition to the VH being swiped. Not sure about memory management implications of this behavior but I needed an additional check in the start of onchildDraw to avoid drawing for "fantom" rows.

```
if (viewHolder.getAdapterPosition() == -1) {
    return;
}
```

BONUS PART:

I've also wanted to continue drawing as other rows animate to their new positions after a row is swipe deleted, and I couldn't do it within ItemTouchHelper and onchildDraw. In the end I had to add another item decorator to do it. It goes along these lines:

```
public void onDraw(Canvas c, RecyclerView parent, RecyclerView.State state) {
   if (parent.getItemAnimator().isRunning()) {
      // find first child with translationY > 0
      // draw from it's top to translationY whatever you want

   int top = 0;
   int bottom = 0;

   int childCount = parent.getLayoutManager().getChildCount();
   for (int i = 0; i < childCount; i++) {
      View child = parent.getLayoutManager().getChildAt(i);
      if (child.getTranslationY() != 0) {
        top = child.getTop();
        bottom = top + (int) child.getTranslationY();
        break;</pre>
```

```
}
}
// draw whatever you want

super.onDraw(c, parent, state);
}
```

UPDATE: I wrote a blog post on recycler view swipe to delete feature. Someone might find it usefull. No 3rd party lib necessary.

blog post git repo

Share edited Oct 5, 2018 at 9:56 answered Jan 8, 2016 at 23:05

Improve this answer

Remanja Kovacevic

3,560 • 2 • 31 • 46

1 I tried out multiple methods for this, and yours (in the blog) worked the best and also seemed to be the simplest! – Aidin Jan 11, 2017 at 10:36

your blog is not loading now. - Manoj Perumarath Sep 18, 2018 at 4:47

fixed dead blog link – Nemanja Kovacevic Oct 5, 2018 at 9:56



6

HappyKatz solution has a tricky bug. Is there any reason for drawing bitmap when dX==0?? In some cases this causes permanent icon visibility above list item. Also icons become visible above list item when you just touch list item and dX==1. To fix these:



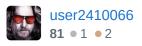




```
if (dX > rectOffset) {
            c.drawRect((float) itemView.getLeft(), (float) itemView.getTop(),
dX,
                    (float) itemView.getBottom(), leftPaint);
            if (dX > iconOffset) {
                c.drawBitmap(leftBitmap,
                         (float) itemView.getLeft() + padding,
                         (float) itemView.getTop() + ((float)
itemView.getBottom() - (float) itemView.getTop() - leftBitmap.getHeight()) / 2,
                        leftPaint);
            }
        } else if (dX < -rectOffset) {</pre>
            c.drawRect((float) itemView.getRight() + dX, (float)
itemView.getTop(),
                     (float) itemView.getRight(), (float) itemView.getBottom(),
rightPaint);
            if (dX < -iconOffset) {</pre>
                c.drawBitmap(rightBitmap,
                         (float) itemView.getRight() - padding -
rightBitmap.getWidth(),
                         (float) itemView.getTop() + ((float)
itemView.getBottom() - (float) itemView.getTop() - rightBitmap.getHeight()) /
```

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answered Jan 5, 2016 at 13:37



how can i draw icon with text - H Raval Oct 12, 2016 at 11:39

@HRaval have you found anything about icon with text? – rookieDeveloper Nov 4, 2016 at 12:43

@HRaval one more question is it clickable? – rookieDeveloper Nov 4, 2016 at 13:49

no...i haven't tried that...i am working with swipe...so for me there is no need – H Raval Nov 5, 2016 at 12:21



In order to implement I used the sample code created by Marcin Kitowicz <u>here</u>.

Benefits of this solution:



- 1. Uses background view with layout bounds instead of creating a Rectangle which will show on top of any Bitmap or Drawable.
- 2. Uses Drawable image opposed to Bitmap which is easier to implement than needing to convert a Drawable into a Bitmap.

The original implementation code can be found <u>here</u>. In order to implement left swipe I used the inverse left and right positioning logic.

```
override fun onChildDraw(c: Canvas, recyclerView: RecyclerView, viewHolder:
RecyclerView.ViewHolder, dX: Float, dY: Float, actionState: Int,
isCurrentlyActive: Boolean) {
if (actionState == ItemTouchHelper.ACTION_STATE_SWIPE) {
   var icon = ContextCompat.getDrawable(context!!, R.drawable.ic_save_24dp)
   var iconLeft = 0
   var iconRight = 0
   val background: ColorDrawable
   val itemView = viewHolder.itemView
   val margin = convertDpToPx(32)
   val iconWidth = icon!!.intrinsicWidth
   val iconHeight = icon.intrinsicHeight
   val cellHeight = itemView.bottom - itemView.top
   val iconTop = itemView.top + (cellHeight - iconHeight) / 2
   val iconBottom = iconTop + iconHeight
   // Right swipe.
   if (dX > 0) {
       icon = ContextCompat.getDrawable(context!!, R.drawable.ic_save_24dp)
```

```
background = ColorDrawable(Color.RED)
       background.setBounds(0, itemView.getTop(), (itemView.getLeft() +
dX).toInt(), itemView.getBottom())
       iconLeft = margin
        iconRight = margin + iconWidth
   } /*Left swipe.*/ else {
        icon = ContextCompat.getDrawable(context!!, R.drawable.ic_save_24dp)
        background = ColorDrawable(Color.BLUE)
       background.setBounds((itemView.right - dX).toInt(), itemView.getTop(),
0, itemView.getBottom())
        iconLeft = itemView.right - margin - iconWidth
        iconRight = itemView.right - margin
   background.draw(c)
    icon?.setBounds(iconLeft, iconTop, iconRight, iconBottom)
    icon?.draw(c)
    super.onChildDraw(c, recyclerView, viewHolder, dX, dY, actionState,
isCurrentlyActive)
}
}
```

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0

Corrected Adam Hurwitz code as the left swipe is not working properly:

```
•
```

1

```
override fun onChildDraw(c: Canvas, recyclerView: RecyclerView, viewHolder:
RecyclerView.ViewHolder, dX: Float, dY: Float, actionState: Int,
isCurrentlyActive: Boolean) {
if (actionState == ItemTouchHelper.ACTION_STATE_SWIPE) {
var icon = ContextCompat.getDrawable(context!!, R.drawable.ic_save_24dp)
var iconLeft = 0
var iconRight = 0
val background: ColorDrawable
val itemView = viewHolder.itemView
val margin = convertDpToPx(32)
val iconWidth = icon!!.intrinsicWidth
val iconHeight = icon.intrinsicHeight
val cellHeight = itemView.bottom - itemView.top
val iconTop = itemView.top + (cellHeight - iconHeight) / 2
val iconBottom = iconTop + iconHeight
// Right swipe.
if (dX > 0) {
    icon = ContextCompat.getDrawable(context!!, R.drawable.ic_save_24dp)
    background = ColorDrawable(Color.RED)
    background.setBounds(0, itemView.getTop(), (itemView.getLeft() +
dX).toInt(), itemView.getBottom())
    iconLeft = margin
    iconRight = margin + iconWidth
} /*Left swipe.*/ else {
    icon = ContextCompat.getDrawable(context!!, R.drawable.ic_save_24dp)
    background = ColorDrawable(Color.BLUE)
    background.setBounds((itemView.right + dX).toInt(), itemView.getTop(),
itemView.right, itemView.getBottom())
```

```
iconLeft = itemView.right - margin - iconWidth
  iconRight = itemView.right - margin
}
background.draw(c)
icon?.setBounds(iconLeft, iconTop, iconRight, iconBottom)
icon?.draw(c)
super.onChildDraw(c, recyclerView, viewHolder, dX, dY, actionState,
isCurrentlyActive)
}
}
```

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answered Aug 16, 2021 at 13:23

