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% Diagram of Android activity life cycle
% Author: Pavel Seda
\documentclass[border=10pt]{standalone}
%%<
\usepackage{verbatim}
%%>
\begin{comment}
:Title: Diagram of Android activity life cycle
:Tags: Diagrams;Flowcharts;Charts;Styles;Computer science
:Author: Pavel Seda
:Slug: android

A flow diagram of an Android activity life cycle.
It uses basic nodes and arrows and defines node styles.
\end{comment}
\usepackage{tikz}
\usetikzlibrary{arrows.meta}
\tikzset{%
  >={Latex[width=2mm,length=2mm]},
  % Specifications for style of nodes:
  base/.style = {rectangle, rounded corners, draw=black,
    minimum width=4cm, minimum height=1cm,
    text centered, font=\sffamily},
  activityStarts/.style = {base, fill=blue!30},
  startstop/.style = {base, fill=red!30},
  activityRuns/.style = {base, fill=green!30},
  process/.style = {base, minimum width=2.5cm, fill=orange!15,
    font=\ttfamily},
}
\begin{document}
% Drawing part, node distance is 1.5 cm and every node
% is prefilled with white background
\begin{tikzpicture}[node distance=1.5cm,
  every node/.style={fill=white, font=\sffamily}, align=center]
  % Specification of nodes (position, etc.)
  \node (start) [activityStarts] {Activity starts};
  \node (onCreateBlock) [process, below of=start] {onCreate()};
  \node (onStartBlock) [process, below of=onCreateBlock] {onStart()};
  \node (onResumeBlock) [process, below of=onStartBlock] {onResume()};
  \node (activityRuns) [activityRuns, below of=onResumeBlock]
    {Activity is running};
  \node (onPauseBlock) [process, below of=activityRuns, yshift=-1cm]
    {onPause()};
  \node (onStopBlock) [process, below of=onPauseBlock, yshift=-1cm]
    {onStop()};
  \node (onDestroyBlock) [process, below of=onStopBlock, yshift=-1cm]
    {onDestroy()};
  \node (onRestartBlock) [process, right of=onStartBlock, xshift=4cm]
    {onRestart()};
  \node (ActivityEnds) [startstop, left of=activityRuns, xshift=-4cm]
    {Process is killed};
  \node (ActivityDestroyed) [startstop, below of=onDestroyBlock]
    {Activity is shut down};

  % Specification of lines between nodes specified above
  % with additional nodes for description
  \draw[->] (start) -- (onCreateBlock);
  \draw[->] (onCreateBlock) -- (onStartBlock);
  \draw[->] (onStartBlock) -- (onResumeBlock);
  \draw[->] (onResumeBlock) -- (activityRuns);
  \draw[->] (activityRuns) -- node[text width=4cm]
    {Another activity comes in
    front of the activity} (onPauseBlock);
  \draw[->] (onPauseBlock) -- node {The activity is no longer visible}

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                                (onStopBlock);
\draw[->]      (onStopBlock) -- node {The activity is shut down by
                                user or system} (onDestroyBlock);
\draw[->]      (onRestartBlock) -- (onStartBlock);
\draw[->]      (onStopBlock) -| node[yshift=1.25cm, text width=3cm]
                                {The activity comes to the foreground}
                                (onRestartBlock);
\draw[->]      (onDestroyBlock) -- (ActivityDestroyed);
\draw[->]      (onPauseBlock) -| node(priorityXMemory)
                                {higher priority $\rightarrow$ more memory}
                                (ActivityEnds);
\draw          (onStopBlock) -| (priorityXMemory);
\draw[->]      (ActivityEnds) |- node [yshift=-2cm, text width=3.1cm]
                                {User navigates back to the activity}
                                (onCreateBlock);
\draw[->] (onPauseBlock.east) -- ++(2.6,0) -- ++(0,2) -- ++(0,2) --
node[xshift=1.2cm,yshift=-1.5cm, text width=2.5cm]
{The activity comes to the foreground}(onResumeBlock.east);
\end{tikzpicture}
\end{document}

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