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When developing an application for the Android smart phone you need to consider the hardware as well as the software. When you consider the hardware the two most important things for consideration are the physical display size and the screen density. If you just consider the display size and ignore the screen density the application may not be displayed on the Android phone screen the way you want it to be. Most of the developers refer to the screen density.

What is screen density?

Screen density is the number of pixels on the screen physical area within a specific area. The screen density is shown as DPI which stands for dots per inch.

How does Screen Density defer from Resolution?

Resolution is just the total number of pixels on the physical screen of the device. No other factor like per inch plays any role in the resolution.

What is density independent pixel (DP)?

When you have to define the User Interface of the layout the designer needs to use the virtual pixel unit. This serves the purpose of expressing the dimension of the layout as well as positioning the elements in a way that is independent of screen density.

A single physical pixel on a screen of 160 DPI is considered equivalent to density independent pixel. When you are working on a screen with medium density, this density is considered to be the baseline.

If you want to convert the DP units to screen pixels then first you need to divide the DPI by 160 and multiply the product of this by the DP.

When the user interface (UI) of the application is to be defined it is always better to use the DP. This assures that the UI is displayed properly on the screen with varied densities.

Android has divided the screen densities into four types. They are ldpi (l stands for low), mdpi (m stands for medium), hdpi (h stands for high), and xhdpi (xh stands for extra high).

This information is very important because the graphical assets have to be delivered for different densities. The graphical assets are also called bitmaps. If you are developing an application for the smart phone then the bitmaps should be delivered in at least mdpi or hdpi.

Up and down scaling of the bitmap graphics from the baseline screen layout is required. The baseline is of 320x533. Care should be taken that when the scaling is done the bitmap graphics neither become blurred nor too small.

Now you have four different density sizes and you want the bitmap graphics to be compatible with devices of different screen density. For this it is recommended that you stick to a scaling ration of 3:4:6:8. It is better that the deliverables are set at 72 pixels per inch and then the scaling of the images is done.

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