



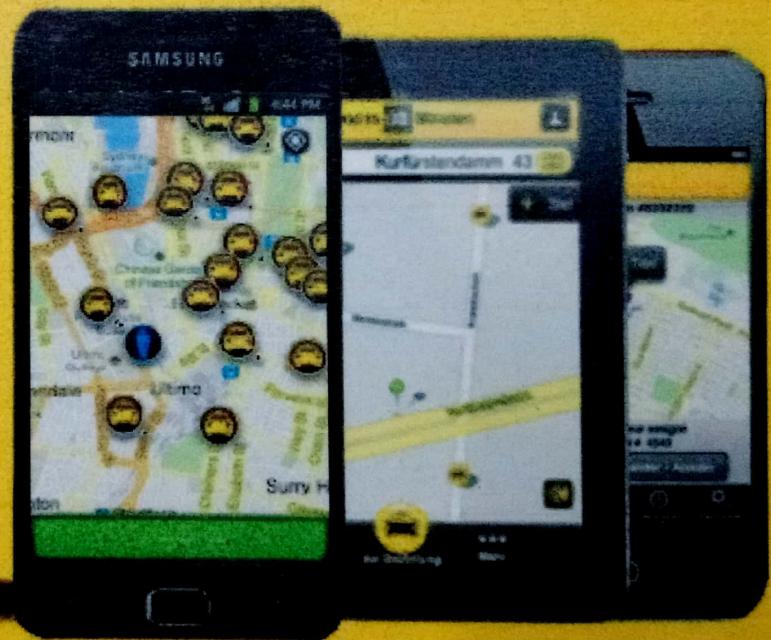
# GET

Taxi

MOBILE TRANSPORTATION  
SYSTEM

Taxi

as it  
should be



**gettaxi** Via Android

*Under The Supervision Of Dr*

**Ehab Rushdy**



Y TO EASILY GET



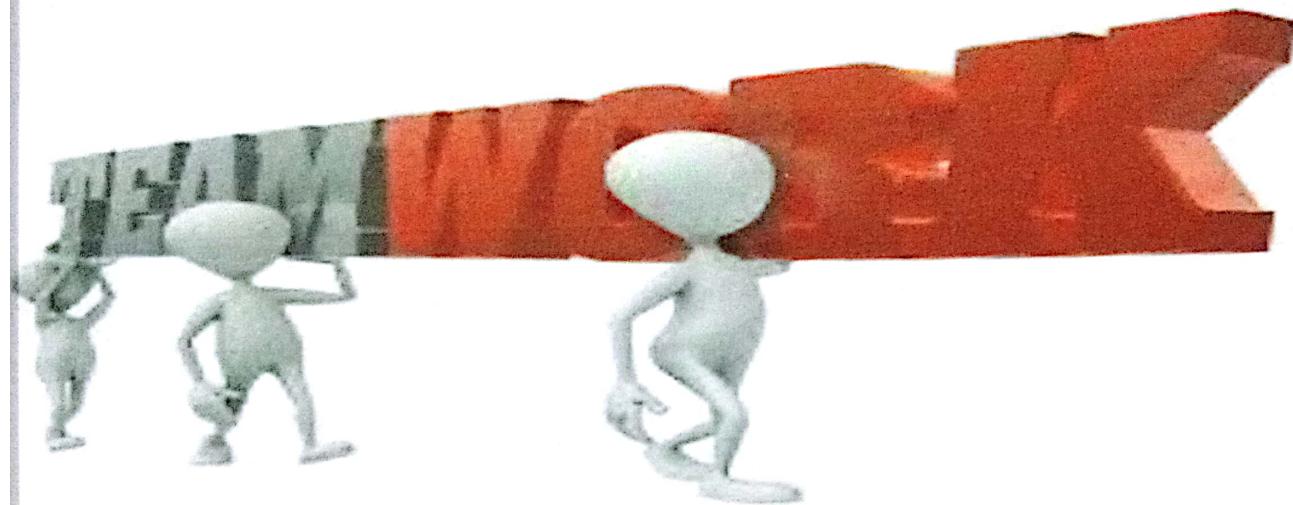
Mobile Transportation  
System

Taxi



**Zagazig university**

**Faculty Of Computer And Informatics**  
**IT Department**



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**Eng / Mahmoud Mahdy**



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Starting with the name of Allah who gave us the power to research and writes our project report .

Then we would like to thank supervisor **Dr.Ehab Rushdy** and teacher assistant **Eng Mahmoud Mahdy** for providing us with opportunities to pursue this project for both support and encouragement .

And **Eng Haytham Gamal** who helps us in the beginning of our project.

We would like to say Thanks to every one that push us further and kept us from giving up :

Love,

*Team work*

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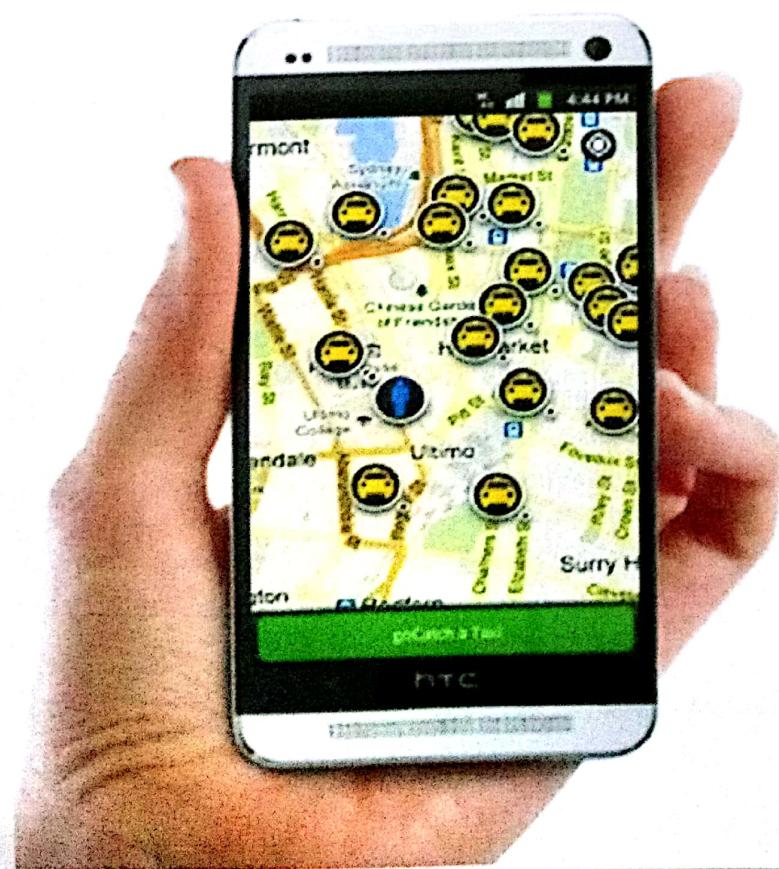
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## CHAPTER 1

# Introduction



# 1-1 Project

## Introduction

### 1-1-1 Idea :

"Mobile Transportation System" When somebody needs to move from one place to another he takes too much time to find a taxi. Our objective is to match the traveler with the nearest taxi. The system should take into consideration the distance between the taxi and the traveler, the number of passengers currently being transported in each taxi, the current destination of the taxi and the jam indicator of each road or street. Our application is designed to self adapt its behavior according to traffic loads over the 24 hours.

### 1-1-2 Description:

**From** now on you will have full control on the taxi order process including the taxi driver movement to your direction – on real time!

Getting a taxi is never going to be the same. For the first time, you get to choose your taxi driver based on your specific needs, rather than have someone randomly assigned to you. Use this application wherever you are, whenever you want, at no extra cost. Tap for the map, pick your cab driver, hop in and get where you're going. Instead of flagging down a stranger, you get a trusted taxi driver rated by other users. Get a taxi in two taps: One for the map and the other for the driver you want: choose the nearest cab, the nicest vehicle or the most recommended driver.

**Order a taxi in the simplest way - from the street, from your office and even from your home.**

This project consists of two parts. First a system service that collects and stores GPS tracking data. Secondly a Map activity that gives control over the tracking services and displays the tracked routes on a Google map interface.

## 1-2 How it works with passengers?!

### ***5 Simple steps to order your Taxi!***

#### **1-2-1 Where Are You ?**

***→Specify your desired pickup location through our application using GPS, maps, known places database or your personal address book***

#### **1-2-2 Submit Application**

***→Send your Taxi request via application and within minutes receive notification of your designated taxi ride. Taxi will strive to allocate you a taxi within 30 minutes of your request***

#### **1-2-3 Where do you want to go ?**

***→Specify your desired destination, either by identifying your location on the map or by inputting your desired destination address.***

#### **1-2-4 Track Your Driver**

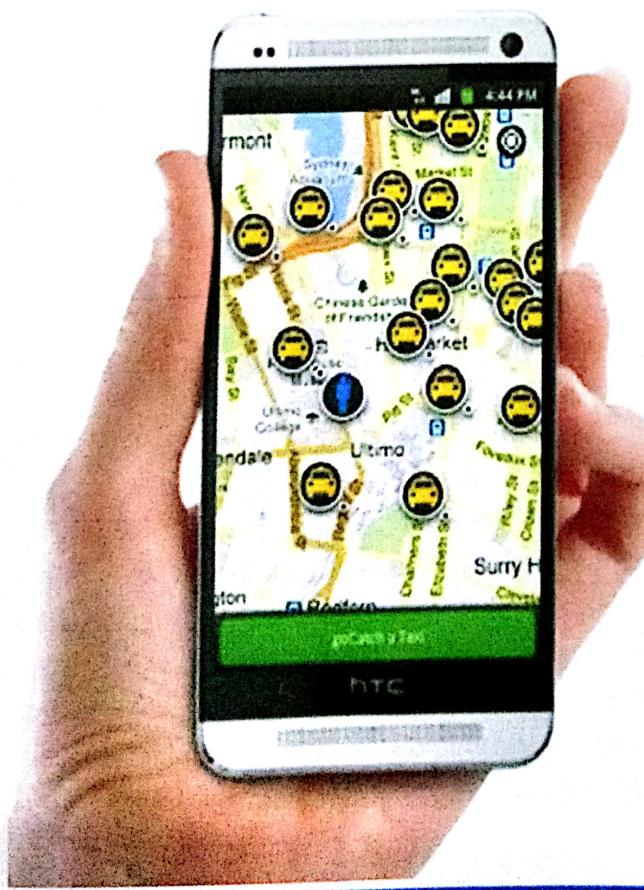
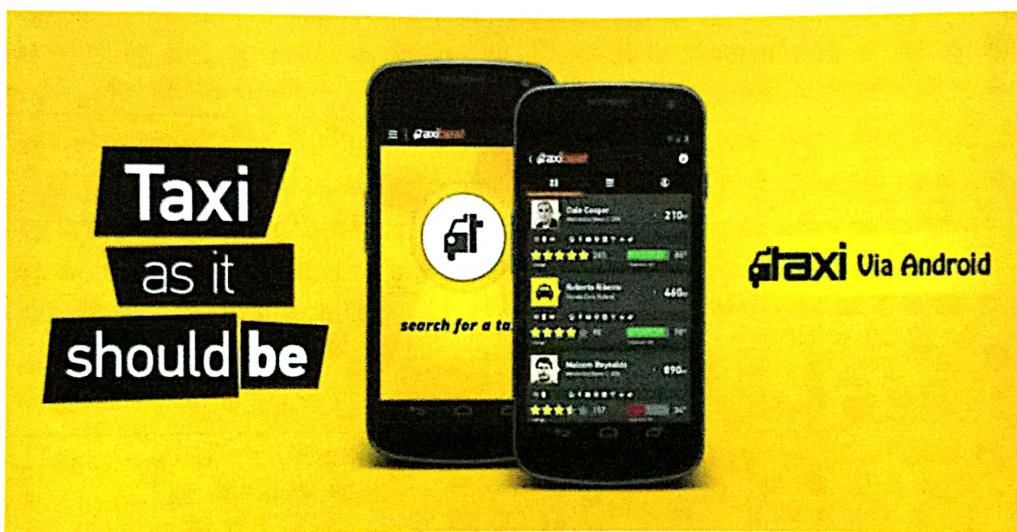
***→For the very first time-track your designated driver as he approaches on the map. No need to wait outside in the streets, as you will be notified as soon as the taxi is approaching your location.***

## 1-3 Usage :

- **Solve** rural areas taxi problem.
- **Contribute** in traffic load balancing.
- **Lower** the tariff of taxis by optimizing the distance travelled.
- **Reduce** fuel consumption cost.
- **Same** rate as regular taxi on the street
- **Reliable**- all requests are tracked and logged on the system, all drivers have been pre-interviewed and submitted their paper work and agreed to the terms of service.
- **Easy-to Use App**- order a taxi with a couple of clicks.
- **Friendly Service**- call us from the luxury and safety of your home.
- **Safe**- track your taxi and your route via GPS via the mobile APP. This way you can use your smartphone to make sure the driver is taking you to the right destination.

## CHAPTER 2

# Background And Tools



# 2-1 Background

At first we use multiple resources in our project to achieve our mission (*Android –PHP Server–MySQL*) are examples of this resources we use .

**Google** acquired Android on August 17, 2005, making it a wholly owned subsidiary of Google. Key employees of Android Inc., including Rubin, Miner and White, stayed at the company after the acquisition. Not much was known about Android Inc. at the time, but many assumed that Google was planning to enter the mobile phone market with this move. At Google, the team led by Rubin developed a mobile device platform powered by the Linux kernel. Google marketed the platform to handset makers and carriers on the promise of providing a flexible, upgradable system. Google had lined up a series of hardware component and software partners and signaled to carriers that it was open to various degrees of cooperation on their part

Android's user interface is based on direct manipulation, using touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching and reverse pinching to manipulate on-screen objects. The response to user input is designed to be immediate and provides a fluid touch interface, often using the vibration capabilities of the device to provide haptic feedback to the user. Internal hardware such as accelerometers, gyroscopes and proximity sensors are used by some applications to respond to additional user actions, for example adjusting the screen from portrait to landscape depending on how the device is oriented, or allowing the user to steer

.a vehicle in a racing game by rotating the device, simulating control of a steering wheel

Android devices boot to the homescreen, the primary navigation and information point on the device, which is similar to the desktop found on PCs. Android homescreens are typically made up of app icons and widgets; app icons launch the associated app, whereas widgets display live, auto-updating content such as the weather forecast, the user's email inbox, or a news ticker directly on the homescreen. A homescreen may be made up of several pages that the user can swipe back and forth between, though Android's homescreen interface is heavily customisable, allowing the user to adjust the look and feel of the device to their tastes. Third party apps available on Google Play and other app stores can extensively re-theme the homescreen, and even mimic the look of other operating systems, such as Windows Phone.

Most manufacturers, and some wireless carriers, customise the look and feel of their Android devices to differentiate themselves from the competition.

# Tools

## 2-2 Android OS



Google offers a variety of services that are not included in the Android platform, but are supported by most Android-powered devices. These services let you add powerful Google features to your Android apps to attract more users. You can find overviews, developer

guides, reference documentation, and more for Google-specific services for Android in the [Google Services](#) section of developer.android.com.

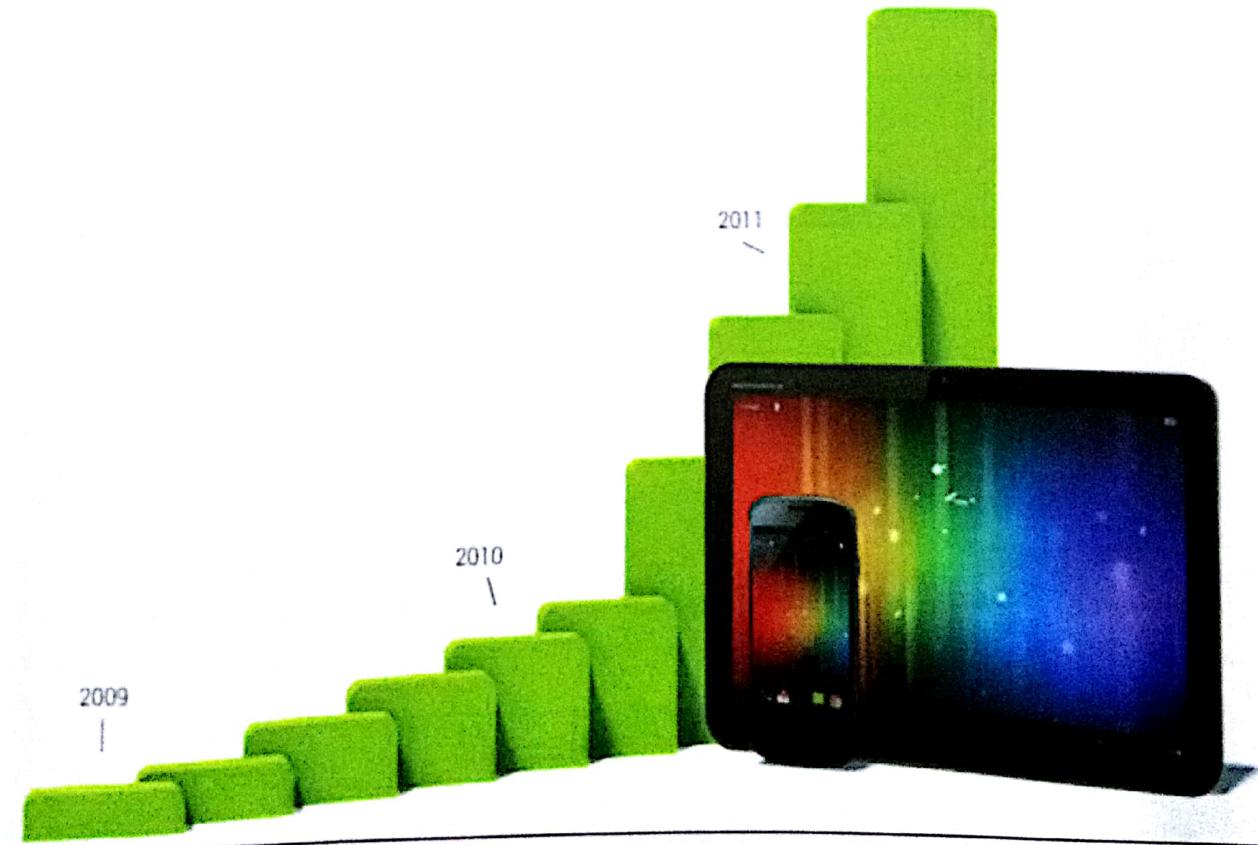
For complete information about the [Android SDK](#) and developing apps for the Android platform, see the [Android Developers](#) site.

## 2-2-1 About android

### Android, the world's most popular mobile platform

Android powers hundreds of millions of mobile devices in more than 190 countries around the world. It's the largest installed base of any mobile platform and growing fast - every day another million users power up their Android devices for the first time and start looking for apps, games, and other digital content.

Android gives you a world-class platform for creating apps and games for Android users everywhere, as well as an open marketplace for distributing to them instantly.



Android growth in device activations

## Global partnerships and large installed base

Building on the contributions of the open-source Linux community and more than 300 hardware, software, and carrier partners, Android has rapidly become the fastest-growing mobile OS.

### Every day more than 1 million new Android devices are activated worldwide.

Android's openness has made it a favorite for consumers and developers alike, driving strong growth in app consumption. Android users download more than 1.5 billion apps and games from Google Play each month.

With its partners, Android is continuously pushing the boundaries of hardware and software forward to bring new capabilities to users and developers. For developers, Android innovation lets you build powerful, differentiated applications that use the latest mobile technologies.

## Powerful development framework

### Easily optimize a single binary for phones, tablets, and other devices.

Android gives you everything you need to build best-in-class app experiences. It gives you a single application model that lets you deploy your apps broadly to hundreds of millions of users across a wide range of devices—from phones to tablets and beyond.

Android also gives you tools for creating apps that look great and take advantage of the hardware capabilities available on each device. It automatically adapts your UI to look its best on each device, while giving you as much control as you want over your UI on different device types.

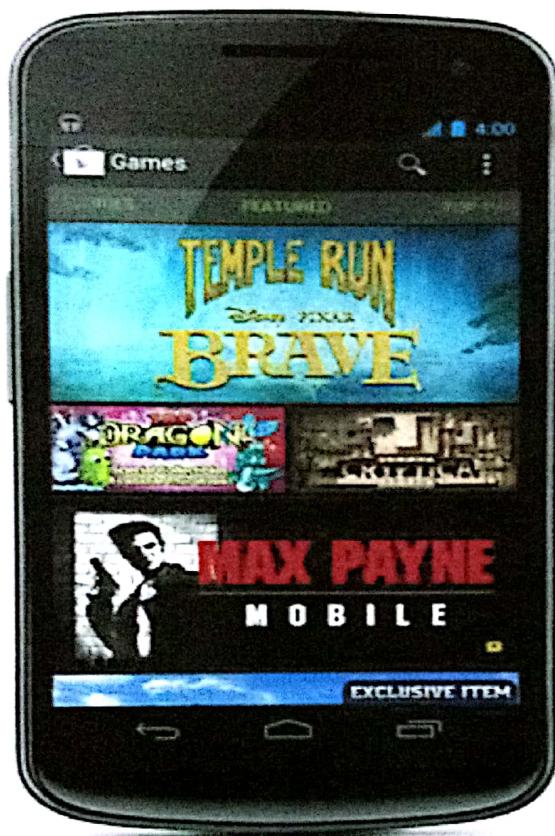
For example, you can create a single app binary that's optimized for both phone and tablet form factors. You declare your UI in lightweight sets of XML resources, one set for parts of the UI that are common to all form factors and other sets for optimizations specific to phones or tablets. At runtime, Android applies the correct resource sets based on its screen size, density, locale, and so on.

To help you develop efficiently, the Android Developer Tools offer a full Java IDE with advanced features for developing, debugging, and packaging Android apps. Using the IDE, you can develop on any available Android device or create virtual devices that emulate any hardware configuration.

1.5 billion downloads a month and growing. Get your apps in front of millions of users at Google's scale.

### Open marketplace for distributing your apps

Google Play is the premier marketplace for selling and distributing Android apps. When you publish an app on Google Play, you reach the huge installed base of Android.



As an open marketplace, Google Play puts you in control of how you sell your products. You can publish whenever you want, as often as you want, and to the customers you want. You can distribute broadly to all markets and devices or focus on specific segments, devices, or ranges of hardware capabilities.

You can monetize in the way that works best for your business—priced or free, with in-app products or subscriptions—for highest engagement and revenues. You also have complete control of the pricing for your apps and in-app products and can set or change prices in any supported currency at any time.

Beyond growing your customer base, Google Play helps you build visibility and engagement across your apps and brand. As your apps rise in popularity, Google Play gives them higher placement in weekly "top" charts and rankings, and for the best apps promotional slots in curated collections.

Preinstalled on hundreds of millions of Android devices around the world, Google Play can be a growth engine for your business.

## 2-2-2 History

**Android** is a Linux-based operating system designed primarily for touchscreen mobile devices such as smartphones and tablet computers. Initially developed by Android, Inc., which Google backed financially and later bought in 2005, Android was unveiled in 2007 along with the founding of the Open Handset Alliance: a consortium of hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices. The first Android-powered phone was sold in October 2008.

Android is open source and Google releases the code under the Apache License. This open source code and permissive licensing allows the software to be freely modified and distributed by device manufacturers, wireless carriers and enthusiast developers.

Additionally, Android has a large community of developers writing applications ("apps") that extend the functionality of devices, written primarily in a customized version of the Java programming language. In October 2012, there were approximately 700,000 apps available for Android, and the estimated number of applications downloaded from Google Play, Android's primary app store, was 25 billion.

These factors have contributed towards making Android the world's most widely used smartphone platform, overtaking Symbian in the fourth quarter of 2010, and the software of choice for technology companies who require a low-cost, customizable, lightweight operating system for high tech devices without developing one from scratch. As a result, despite being primarily designed for phones and tablets, it has seen additional applications on televisions, games consoles, digital cameras and other electronics. Android's open nature has further encouraged a large community of developers and enthusiasts to use the open source code as a foundation for community-driven projects, which add new features for advanced users or bring Android to devices which were officially released running other operating systems.

Android had a worldwide smartphone market share of 75% during the third quarter of 2012, with 750 million devices activated in total and 1.5 million activations per day. The operating system's success has made it a target for patent litigation as part of the so-called "smartphone wars" between technology companies. As of May 2013, a total of 900 million Android devices have been activated and 48 billion apps have been installed from the Google Play store.

## 2-2-3 Get Started

Everything you need to start developing apps for Android is available here on developer.android.com. You'll find everything from the developer SDK, API documentation,

and design guidelines, to information about the current device landscape and how you can distribute and monetize your app.

No two apps are built in the same way, but we've structured the information you need to build an app into the following three sections that represent the general order for app development.

## 1. Design

Before you write a single line of code, you need to design the user interface and make it fit the Android user experience. Although you may know what a user will *do* with your app, you should pause to focus on how a user will *interact* with it. Your design should be sleek, simple, powerful, and tailored to the Android experience. So whether you're a one-man shop or a large team, you should study the Design guidelines first.

## 2. Develop

Once your design is finalized, all you need are the tools to turn your app ideas into reality. Android's framework provides you the APIs to build apps that take full advantage of device hardware, connected accessory devices, the Internet, software features, and more. With the power of Android, there's no limit to the power of your apps.

Everything you need to learn about the app framework and developer tools is in the Develop documentation.

## 3. Distribute

Now your app is complete. You've built it to support a variety of screen sizes and densities, and tested it on the Android emulator and on real devices. You're ready to ship your app.

How you proceed depends on a variety of factors, such as your monetization strategy and which types of devices your app supports. Everything you need to get started with this process is available in the Distribute section.

Now that you know what's available, get started by installing the Android SDK.

### Benefits of Using Android OS in Mobile Phones

Growing demand of smart phones and mobile phone devices has increase the demand and popularity of Android application development these days, and as a result of this there are lots of companies which are available in the market which are developing android applications.



Android has become a need rather than luxury these days, and its popularity has increased rapidly among the smart phones. Android App Development is nowadays has become an important tool for developing mobile applications. There are lots of OS which are available these days but among all of them android is the best one, as it can be handled easily and also it is very easy to implement because of its open source nature. The (SDK) facilitated by the Android assists the developers to start developing and working on the applications instantaneously and the app can be implemented faster. Android is a product of Google and it is owned by open handset alliance group.

The android mobile platform constitutes of an operating system (OS), the middle ware, main applications, and a (SDK). The SDK facilitates the developers with the APIs and tools needed for Development. The distribution platform is of an open nature which allows the android developers to develop the applications and freely distribute them over the internet.

Some of the major benefits of using android OS in mobile phones an smart phones are as follows:



- Android is based on Linux. This facilitates easy accessibility to rich development

environment and core functionality of the mobile device.

- It allows quick information gathering. It also provides the accurate information sought.
- The cycle is drastically reduced.
- The development tools are easy to use.
- All the information and services are provided to the developers without any biasness.
- It provides rich browser facilities as well. This facilitates the developer to provide enhanced services.

## 2-2-4 Installation:

### Options

You have different options to install the Android development tools. The simplest way is to download a full packaged pre-configured Eclipse.

For other options please see [Android installation](#)

### Standalone ADT installation

### Download

Google provides a pre-packaged and configured Eclipse based Android Development environment. The following link allows to download a archive file which includes all required tools for Android development.

<http://developer.android.com/sdk/index.html>

## 2-2-5 Standalone ADT installation

Extract the zip file and start Eclipse from the *eclipse* folder via the *eclipse* native launcher, e.g. *eclipse.exe* under Windows.

### Android virtual device (Emulator).

#### What is the Android Emulator?

The Android Development Tools (ADT) include an emulator to run an Android system. The emulator behaves like a real Android device (in most cases) and allows you to test your application without having a real device. You can configure the version of the Android system you would like to run, the size of the SD card, the screen resolution and other relevant settings. You can define several of them with different configurations. These devices are called *Android Virtual Device* and you can start several in parallel.

### Google vs. Android AVD

During the creation of an AVD you decide if you want an Android device or a Google device. An AVD created for Android will contain the programs from the Android Open Source Project. An AVD created for the Google API's will also contain several Google applications, most notable the Google Maps application.

If you want to use functionality which is only provided via the Google API's, e.g. Google Maps you must run this application on an AVD with Google API's.

### Emulator Shortcuts

The following shortcuts are useful for working with the emulator.

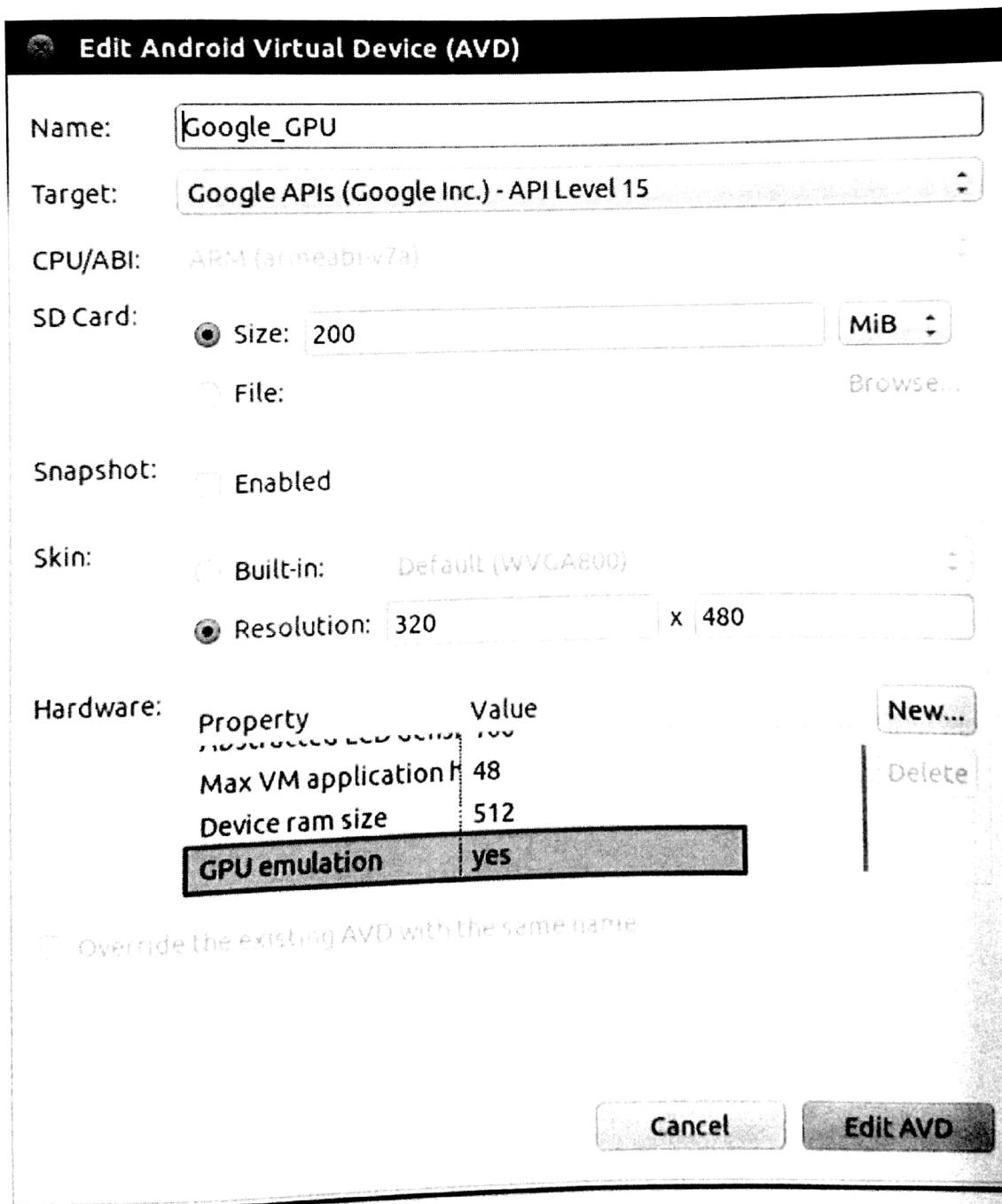
**Alt+Enter** Maximizes the emulator. Nice for demos.

**Ctrl+F11** changes the orientation of the emulator.

F8 Turns network on / off.

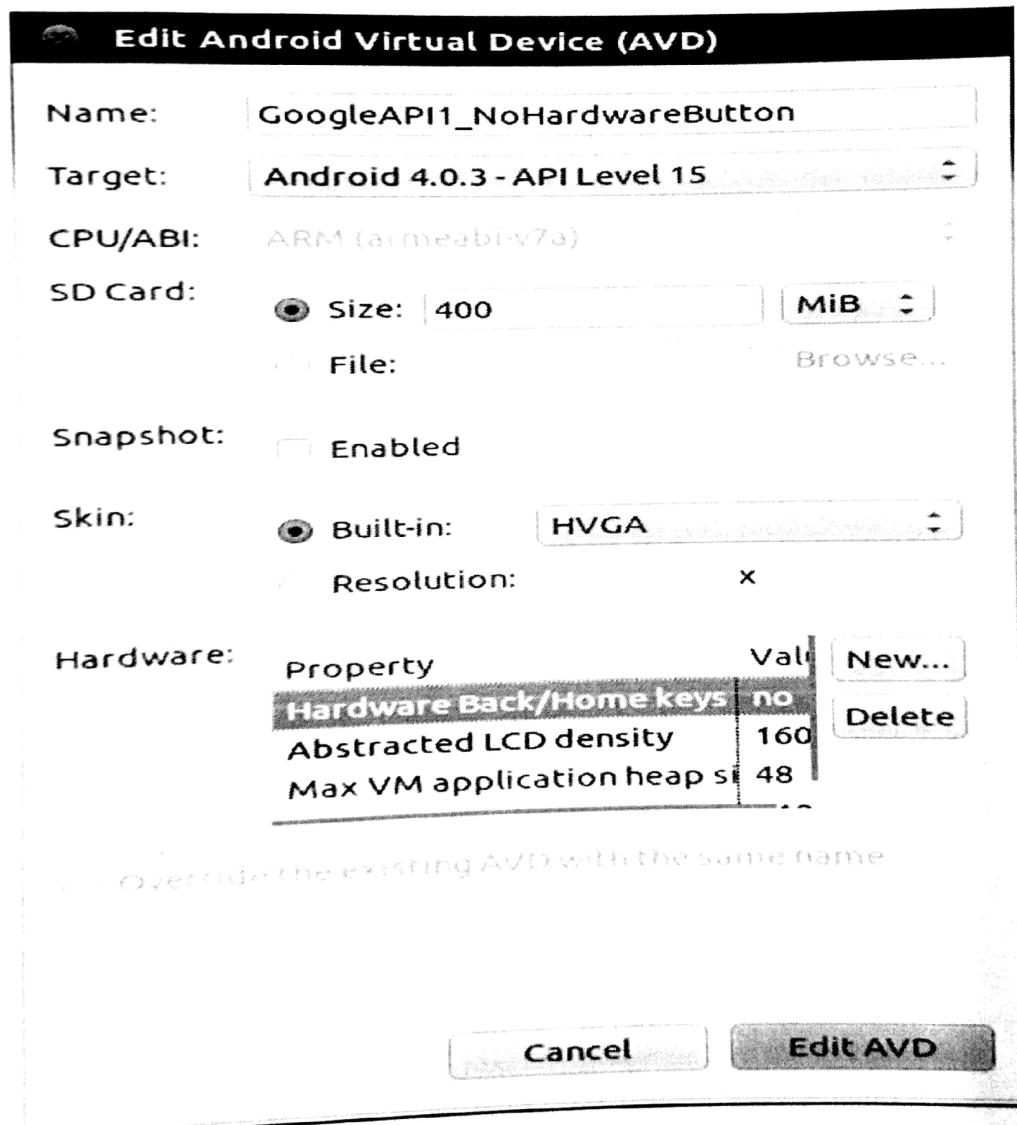
## Parameter

The graphics of the emulator can use the native GPU of the computer. This makes the rendering in the emulator very fast. To enable this, add the GPU Emulation property to the device configuration and set it to true.



You can also set the Enabled flag for Snapshots. This will save the state of the emulator and will let it start much faster. Unfortunately currently native GPU rendering and Snapshots do not work together.

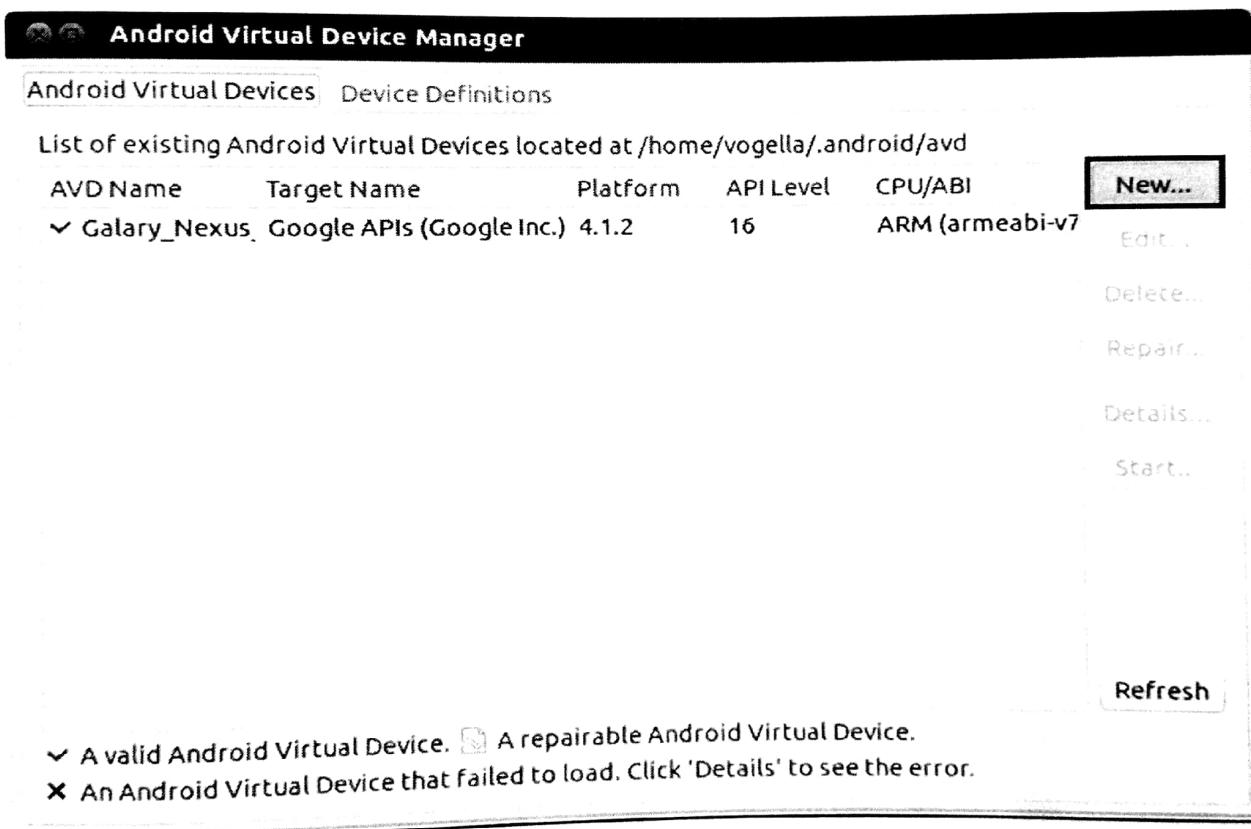
Android devices do not have to have hardware button. If you want to create such an AVD, add the Hardware Back/Home keys property to the device configuration and set it to false.



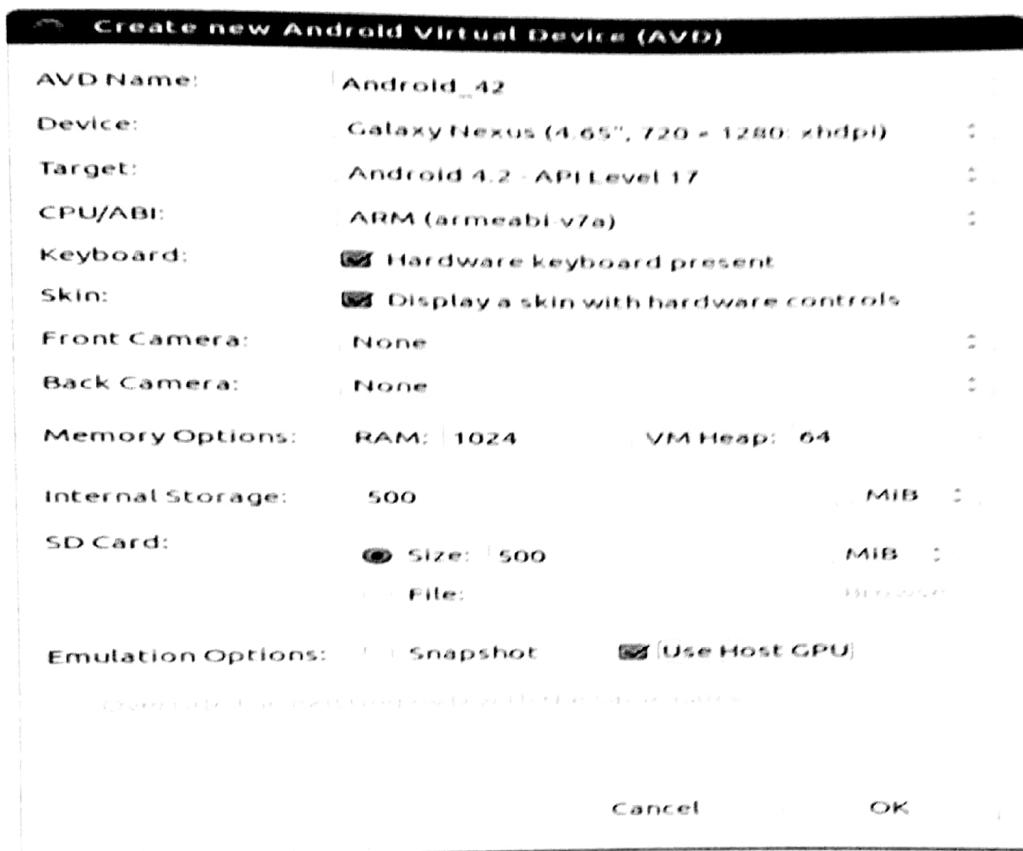
## 2-2-6 Create and run Android Virtual Device .

### Create AVD :

To define an Android Virtual Device (ADV) open the AVD Manager dialog via Window → Android Virtual Device Manager and press the New button.

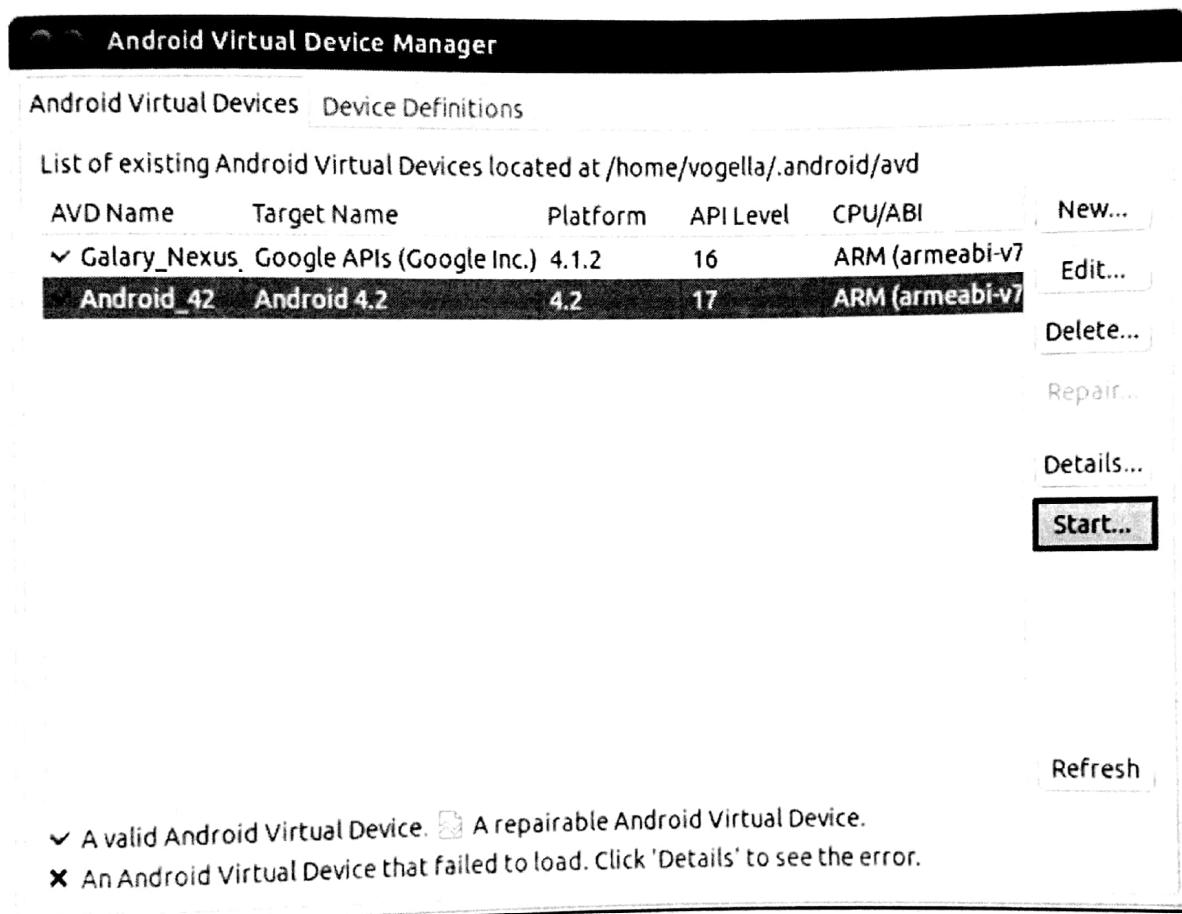


Enter the values similar to the following screens



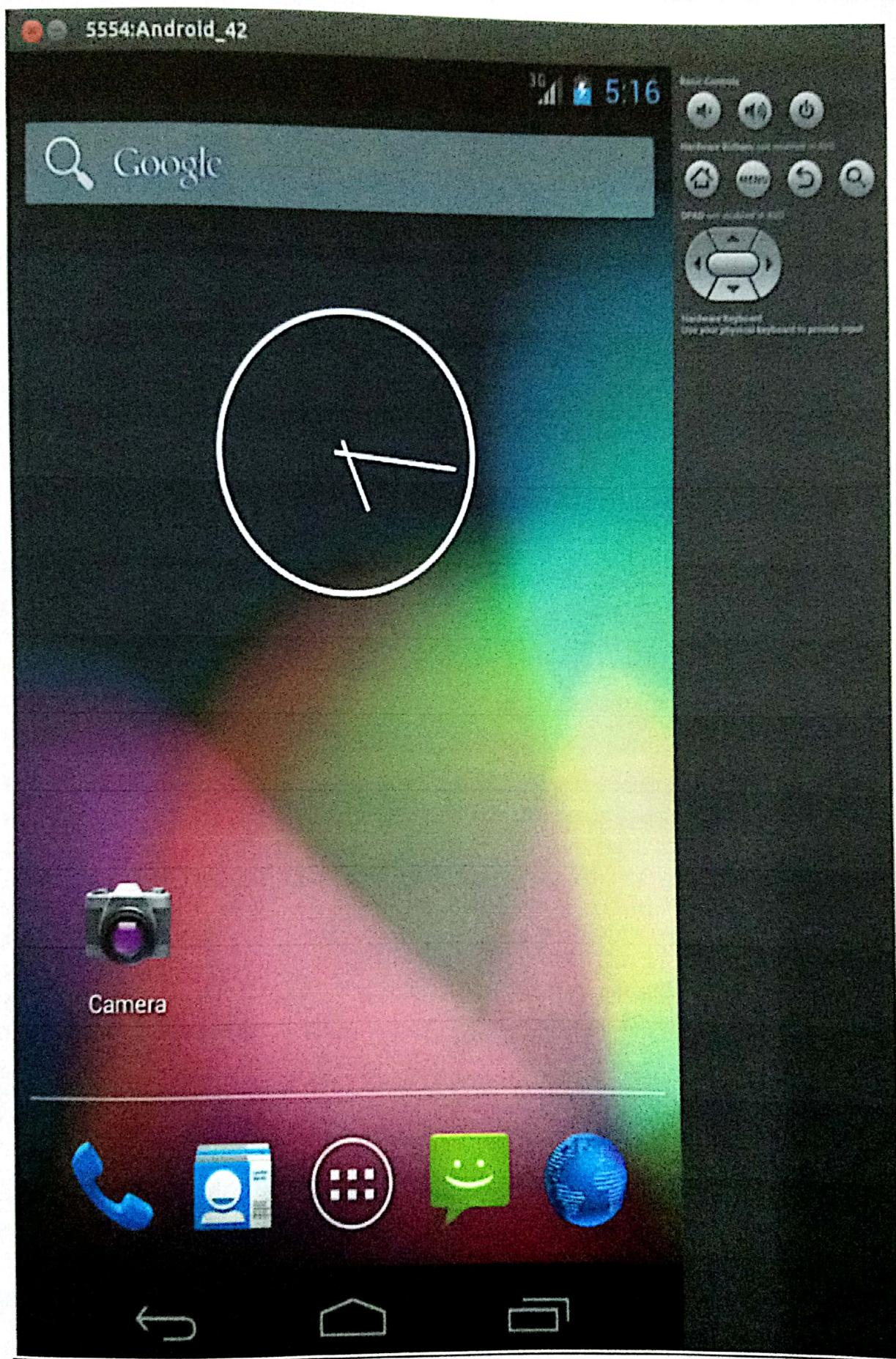
# Run AVD

To test if your setup is correct, select your new entry and press the *Start* button.



After some time your AVD starts. Do not interrupt this startup process, as this might corrupt the AVD.

After the AVD started, you can use the AVD via the mouse and via the virtual keyboard of the emulator.



# 2-3 PHP Server



PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP is now installed on more than 244 million websites and 2.1 million web servers. Originally created by Rasmus Lerdorf in 1995, the reference implementation of PHP is now produced by The PHP Group. While PHP originally stood for Personal Home Page, it now stands for PHP: Hypertext Preprocessor, a recursive acronym.

PHP code is interpreted by a web server with a PHP processor module which generates the resulting web page: PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in standalone graphical applications.

PHP is free software released under the PHP License, which is incompatible with the GNU General Public License (GPL) due to restrictions on the usage of the term PHP. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge .

## 2-3-1 Starting the MySQL Server Instance Config Wizard :

The MySQL Server Instance Config Wizard is normally started as part of the installation process. You should only need to run the MySQL Server Instance Config Wizard again when you need to change the configuration parameters of your server. If you chose not to open a port prior to installing MySQL on Windows Vista or newer, you can choose to use the MySQL Server Instance Config Wizard after installation. However, you must open a port in the Windows Firewall.

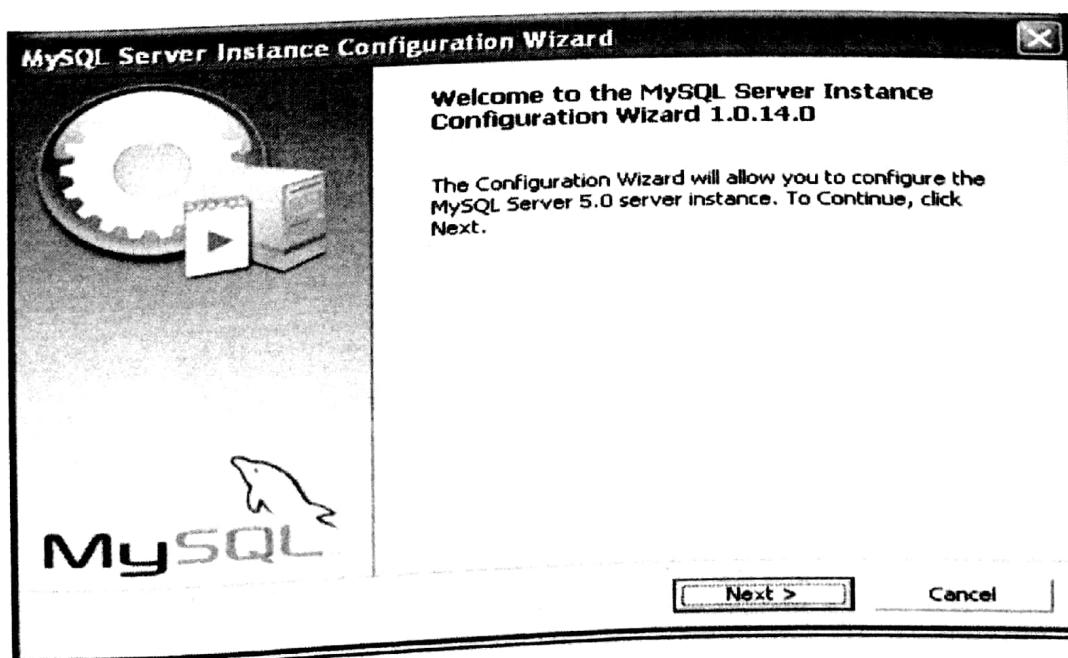
## 2-3-2 MySQL Installation Wizard:

Downloading and Starting". Rather than opening a port, you also have the option of adding MySQL as a

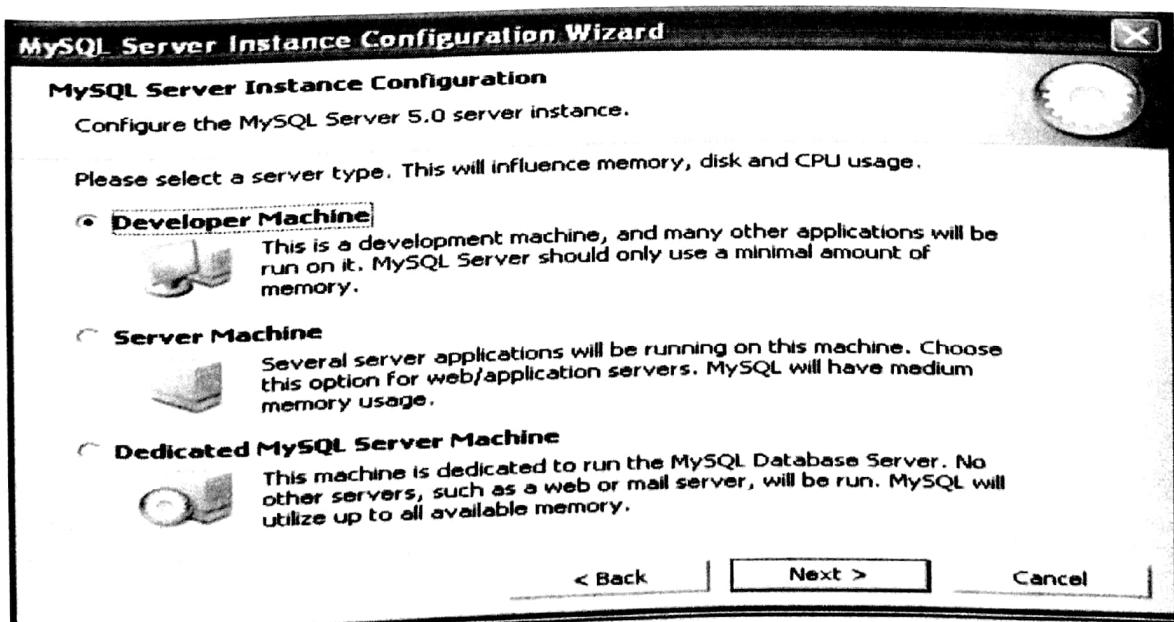
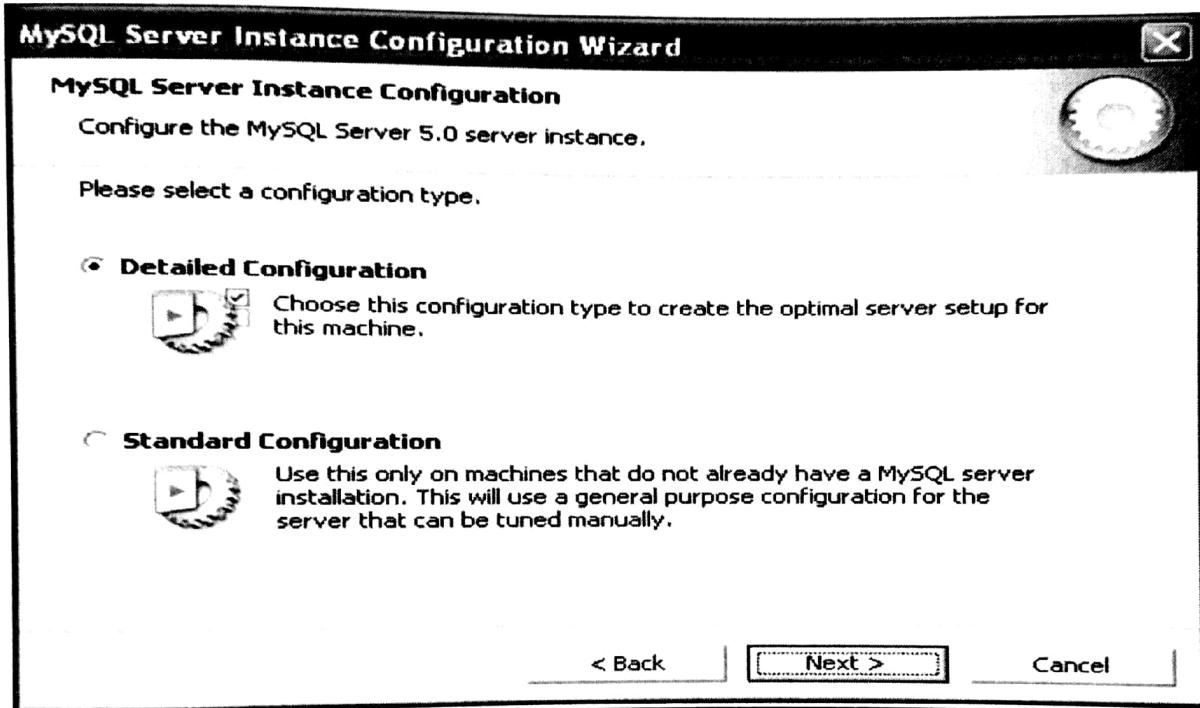
program that bypasses the Windows Firewall. One or the other option is sufficient—you need not do both.

Additionally, when running the MySQL Server Config Wizard on Windows Vista or newer, ensure that you

are logged in as a user with administrative rights.



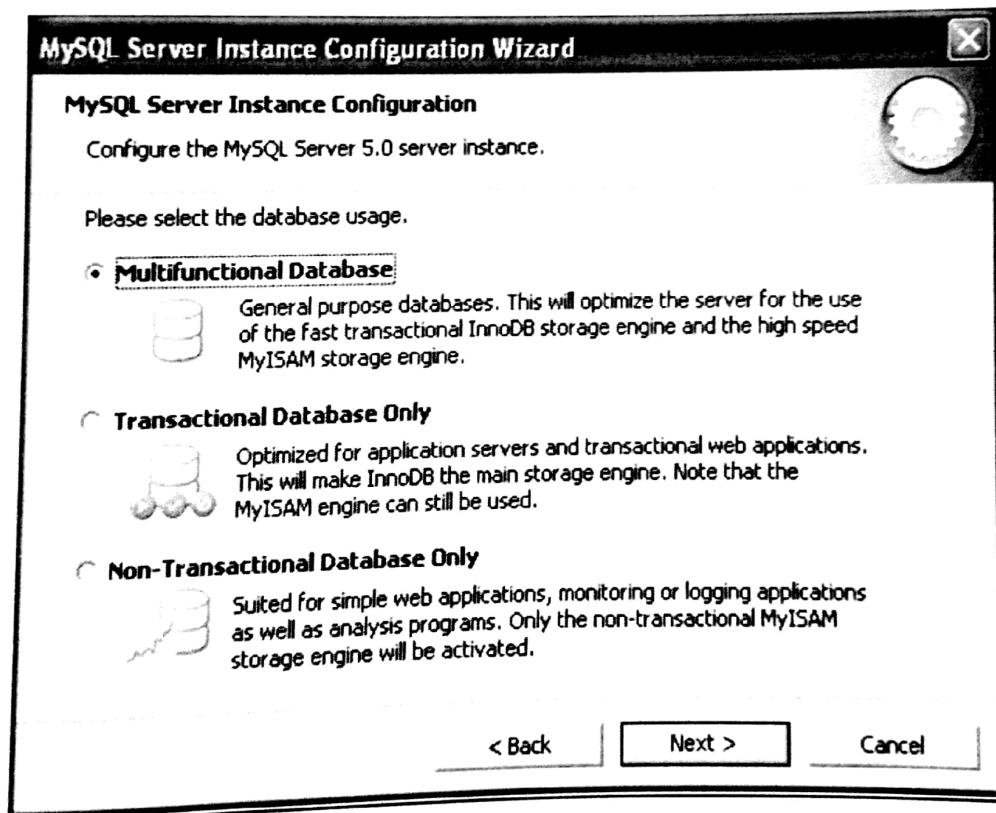
# MySQL Server Instance Config Wizard: The Server Type Dialog



- **Developer Machine :** Choose this option for a typical desktop workstation where MySQL is intended only for personal use. It is assumed that many other desktop applications are running. The MySQL server is configured to use minimal system resources.

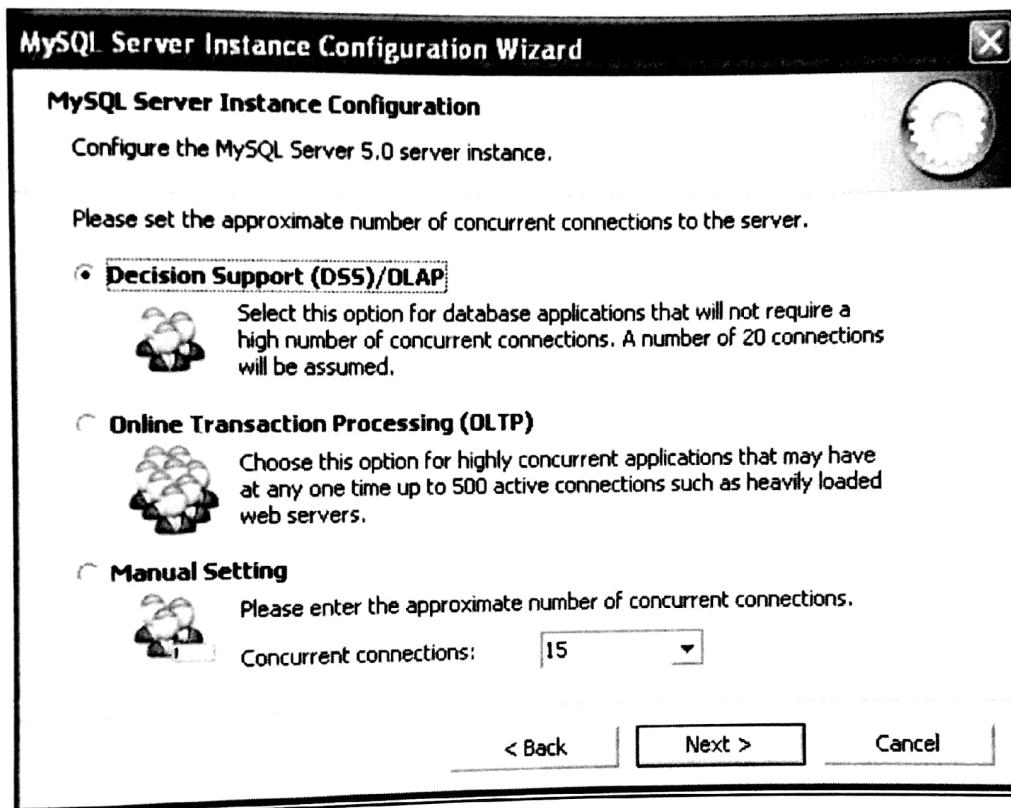
- **Server Machine :** Choose this option for a server machine where the MySQL server is running alongside other server applications such as FTP, email, and Web servers. The MySQL server is configured to use a moderate portion of the system resources.

- **Dedicated MySQL Server Machine :** Choose this option for a server machine that is intended to run only the MySQL server. It is assumed that no other applications are running. The MySQL server is configured to use all available system resources.

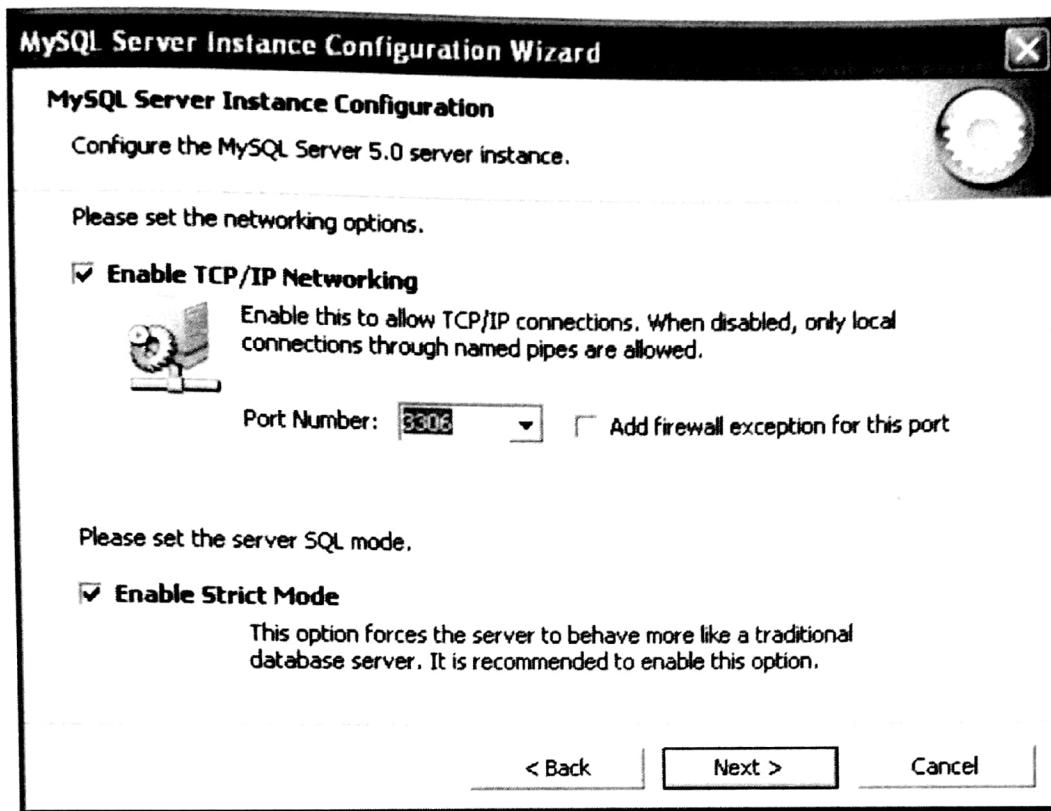


- **Multifunctional Database:** This option enables both the InnoDB and MyISAM storage engines and divides resources evenly between the two. This option is recommended for users who use both storage engines on a regular basis.
- **Transactional Database Only:** This option enables both the InnoDB and MyISAM storage engines, but dedicates most server resources to the InnoDB storage engine. This option is recommended for users who use InnoDB almost exclusively and make only minimal use of MyISAM.

- **Non-Transactional Database Only :** This option disables the InnoDB storage engine completely and dedicates all server resources to the MyISAM storage engine. This option is recommended for users who do not use InnoDB.



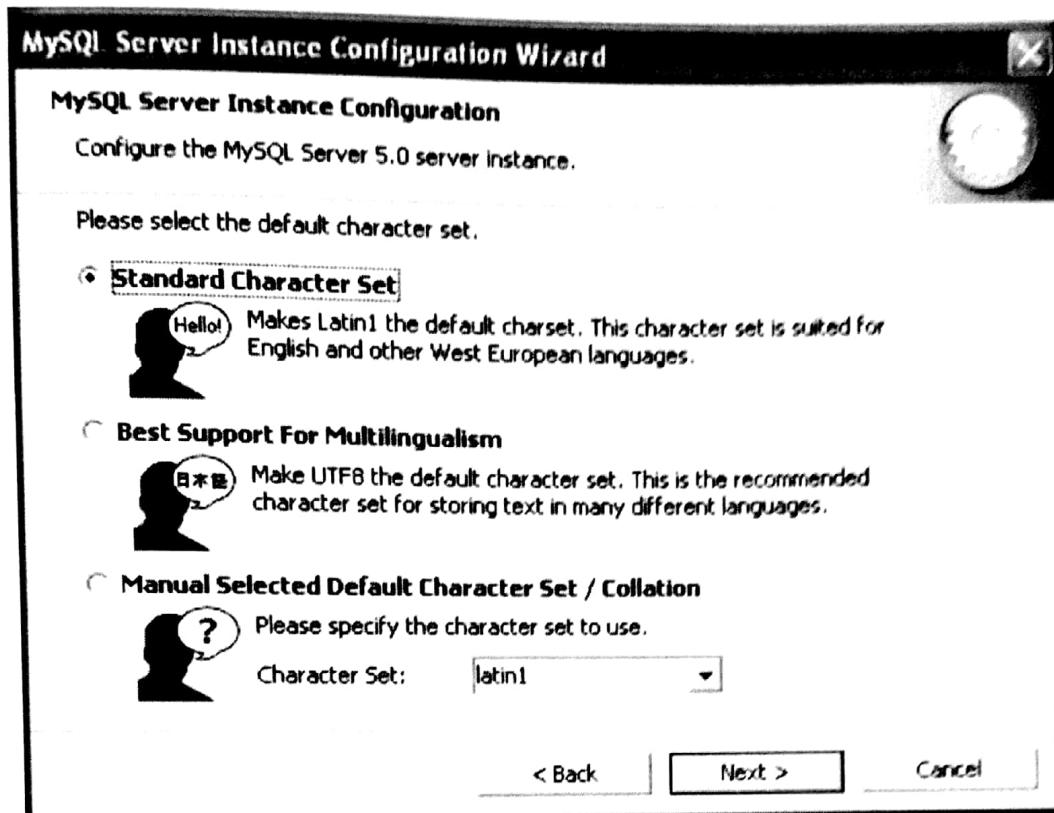
- **Decision Support (DSS)/OLAP :** Choose this option if your server does not require a large number of concurrent connections. The maximum number of connections is set at 100, with an average of 20 concurrent connections assumed.
- **Online Transaction Processing (OLTP) :** Choose this option if your server requires a large number of concurrent connections. The maximum number of connections is set at 500.
- **Manual Setting :** Choose this option to set the maximum number of concurrent connections to the server manually. Choose the number of concurrent connections from the drop-down box provided, or enter the maximum number of connections into the drop-down box if the number you desire is not listed.



**TCP/IP networking** is enabled by default. To disable TCP/IP networking, uncheck the box next to the **Enable TCP/IP Networking** option.

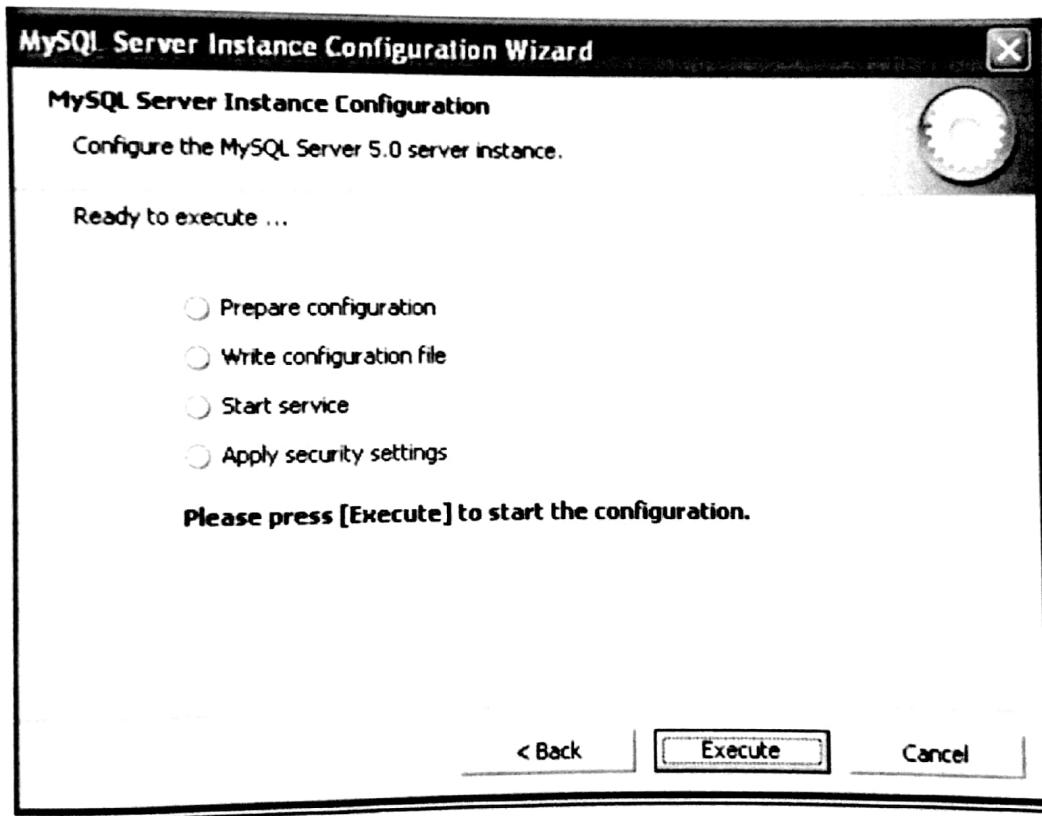
**Port 3306** is used by default. To change the port used to access MySQL, choose a new port number from

the drop-down box or type a new port number directly into the drop-down box. If the port number you choose is in use, you are prompted to confirm your choice of port number.



- **Standard Character Set** : Choose this option if you want to use latin1 as the default server character set. latin1 is used for English and many Western European languages.
- **Best Support For Multilingualism** : Choose this option if you want to use utf8 as the default server character set. This is a Unicode character set that can store characters from many different languages.
- **Manual Selected Default Character Set / Collation** : Choose this option if you want to pick the server's.

Default character set manually. Choose the desired character set from the provided drop-down list.



After you click the Execute button, the MySQL Server Instance Config Wizard performs a series of tasks and displays the progress onscreen as the tasks are performed. The MySQL Server Instance Config Wizard first determines configuration file options based on your choices using a template prepared by MySQL developers and engineers. This template is named mytemplate.ini and is located in your server installation directory. The MySQL Config Wizard then writes these options to the corresponding configuration file. If you chose to create a service for the MySQL server, the MySQL Server Instance Config Wizard creates and starts the service. If you are reconfiguring an existing service, the MySQL Server Instance Config Wizard restarts the service to apply your configuration changes. If you chose to set a root password, the MySQL Config Wizard connects to the server, sets your new root password, and applies any other security settings you may have selected. After the MySQL

Server Instance Config Wizard has completed its tasks, it displays a summary. Click the Finish button to exit the MySQL Server Config Wizard.

After all we open the server and create our database, and edit all fields as wants.

It will look like this after all:

This Schemata contains fields: id, status, longitude, and latitude for 20 entities.

The screenshot shows the phpMyAdmin interface with the following details:

- Resultset 1:** The current result set being viewed.
- Query:** The SQL query used: `SELECT * FROM map;`
- Table Structure:** The 'map' table has four columns: id, status, longitude, and latitude.
- Data:** The table contains 20 rows of data, each representing a taxi's status and location. The data is as follows:

id	status	longitude	latitude
1	free	31.505171	30.574972
2	busy	31.500107	30.568999
3	free	31.50149	30.586536
4	free	31.518075	30.588842
5	free	31.428708	30.584135
6	busy	31.507403	30.580233
7	busy	31.502761	30.5821
8	busy	31.515718	30.571388
9	free	31.509769	30.576893
10	busy	31.514447	30.579371
11	free	31.489513	30.564726
12	busy	31.495684	30.561807
13	free	31.498959	30.562934
14	busy	31.51503	30.566647
15	busy	31.506704	30.58044
16	free	31.500138	30.582214
17	free	31.493761	30.582583
18	busy	31.497496	30.579443
19	busy	31.493427	30.584578
20	busy	31.507281	

- Schemata:** A tree view of the database structure, showing the 'map' table is part of the 'test' schema.
- Syntax:** A list of MySQL statement types: Data Definition Statements, Data Manipulation Statements, MySQL Utility Statements, MySQL Transactional and Locking, Database Administrator Statements, Replication Statements, and SQL Syntax for Prepared Statements.
- Bottom Bar:** Includes buttons for Edit, Max, and Search.



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