

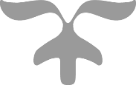
# Informatics Practices

### Project Report



Music101

A Unique Learning Solution For Aspiring Musicians



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**About E-Learning**

The e-learning is an umbrella term that describes learning done at a computer, usually connected to a network, giving the opportunity to learn almost anytime, anywhere. E-learning is efficient as it eliminates distances and subsequent commutes. Distance is eliminated because the e-learning content is designed with media that can be accessed from properly equipped computer terminals and other means of Internet accessible technology.

*“E-Learning is the instruction delivered electronically wholly by a web browser, through the Internet or an intranet or through CD-ROM or DVD multimedia platforms.”*

Thus, E-Learning is a flexible term used to describe a means of teaching through technology such as a network, browser, CDROM or DVD multimedia platforms.

### Societal Impacts of E-Learning:

* Availability of same course to millions
* Boon for working class
* Apprehensive employers
* Cultural differences obstruct the true aim of E-Learning
* High dropout rate

**About Java, NetBeans and MySQL**

**Java**

Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA), meaning that compiled Java code can run on all platforms that support Java without the need for recompilation. Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of computer architecture. Java is one of the most popular programming languages in use, particularly for client-server web applications. Java was originally developed by James Gosling at Sun Microsystems, which has since been acquired by Oracle Corporation.

**NetBeans**

NetBeans IDE is a free, open-source, cross-platform Integrated Development Environment with built-in support for Java Programming Language. It comes with drag-and-drop GUI creation. It has excellent editing and debugging features and provides wizards, code generators and other helpful tools for a programmer. NetBeans has the most advanced GUI building tools available in any open-sources Java IDE.

**MySQL**

MySQL is an open-source, relational database management system (RDBMS). Its name is a combination of “My”, the name of co-founder Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned by the Swedish company MySQL AB, now owned by Oracle Corporation MySQL is a central component of the LAMP open-source web application software stack. LAMP is an acronym for "Linux, Apache, MySQL, Perl/PHP/Python".

# Introduction to the Project

Music is essential to many of our lives. We listen to it when waking up, while in transit, at work, and with our friends. For many, music is like a constant companion. It can bring us joy and motivate us, accompany us through difficult times, and alleviate our worries.

To understand how music is made we need to know a bit of musical theory. The basics of music lie within a set of 12 notes with different pitches. From these 12, different notes can be used to form a pattern. These patterns are known as scales (ragas). In music, a scale is any set of musical notes ordered by fundamental frequency or pitch. Apart from scales there is another concept known as chords which is a smaller set of notes derived from each scale. Though there are some rules in forming such patterns, the total number of scales that exist are more than 150 and the number of chords that can be formed from this are thousands! It is almost impossible for even the greatest musicians to remember these many number of scales and chords.

This is where this application comes to help. By just choosing the scale the pianist wants to know about, the application gives the notes of that scale and also illustrates it on a virtual keyboard. The application can also tell which scale the pianist is playing on by selecting the notes he thinks is in that scale. Similarly, the application can select and identify chords which the pianist desires.

In a guitar, there is no specific pattern to identify scales like in a piano or keyboard; it only depends on the length of the vibrating string whose positions are to be memorized. Guitarists too face the problem of remembering innumerous chords and this application serves them in that purpose.

It is an E-Learning Platform. The application is resourceful and practical. The main aim is to help musicians around the world by teaching and helping them in their course of making music. I also aim to expand the application to other instruments like the violin and cello in the future, making it more useful and increasing the target audience.

### Front End Tool:

The front end tool I have used is **NetBeans IDE** which is based on **Java**.

The main components that are used in the application are:

* **JFrame**
* **JTabbedPane**
* **JPanel**
* **JLabel**
* **JComboBox**
* **JButton**
* **JScrollPane**
* **JTable**
* **JSeparator**

### Back End Tool:

The back end tool I have used is **MySQL** developed by Oracle.

Database Name – **Music101DB**

Tables and Fields –

1. ***scales***

* **ChordName**
* **1-7 ( 7 columns each containing alphabetic values of notes )**

1. ***scalesNum***

* **ChordName**
* **1-7 ( 7 columns each containing numeric value of notes )**

1. ***gChords***

* **ChordName**
* **1-6 ( 6 columns each representing one string )**
* **out1-out6 ( 6 columns each representing finger position on each string )**
* **FretNum**

**Data Structure**

**Source Code**

**Bibliography**