



Musifyer - A Music Notes Translator App

A Music Notes Translator Web Application

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Abstract

Musifyer is a web app that translates Indian Classical compositions into Western Sheet Music, as well as two text formats. This web app combines concepts of both Gurmat Sangeet as well as Western Music to combine the two into a translator app. In addition, Musifyer has the following features: the ability to take in multi-line compositions, the taal it was written in, and the scale the user would like it translated to. Musifyer accommodates both shudh and vakrit surs of the Mandar, Madhyam, and Taar Saptaks and lets you write compositions with dusra jaati (eighth notes) as well as chatsuri jaati (sixteenth notes).

**Note: This is still a work in progress and new features are continuously being added.*

This app is designed and built by Simran Kaur, a GSRI 2024 intern, with guidance and support from her father, Amarpal Singh.

User Interface

Musifyer - A Music Notes Translator Web App - Version 1.0

By: Simran Kaur

This music translation app converts Indian Classical music notes to Western sheet music as well as two text formats.

**List of allowable Indian Classical music notes as input in this version 1.0 of the App are: S,r,R,g,G,M,m,P,d,D,n,N. The Mandar and Taar Saptaks are also supported as . and ' respectively.

**Beats should be separated by a comma. If two notes are between a pair of commas, each of the two notes will be treated as eighth note. If four notes are between a pair of commas, each of the four notes will be treated as 16th note. Triplets are not yet supported.

**If on hitting the Submit button, you get "Connection Lost" error, please wait a few seconds and hit submit again

The image above is a screenshot of the application interface.

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Relationship Between Indian Classical and Western Music

1. Raag vs. Key Signatures:

A raag is a set of notes ascending (aroh) and descending (avroh). Compositions are based on the rules of a raag, and raags may not have all seven surs (notes). Additionally, the aroh and avroh won't necessarily have the same notes or the same pattern. There are thirty-one shudh raags and thirty-one mishrat raags in Sri Guru Granth Sahib Ji. Combinations of komal (flat) and teevhar (sharp) surs as well as the pattern in which they are performed create the variations between raags.

On the other hand, key signatures/scales are a set of sharps or flats that tell how the composition should be played. There are always seven notes which are the same both ascending and descending in standard major scales. There are twelve major scales in western music. The number sharps or flats create the variations between each scale.

2. Komal & Teevhar Surs vs. Flat and Sharp Notes:

Komal surs are notes that are half a step lower (i.e. flat) than the Shudh note. Rishab (Re), Gandhar (Ga), Dhaivat (Dha), and Nishad (Ni) have komal versions of them. Teevhar surs are notes that are half a step higher (i.e. sharp) than the shudh note. Only Madhyam (Ma) has a teevhar version. Shadaj (Sa) and Pancham (Pa) are achala surs as they have neither a komal nor a teevhar version and are always shudh (natural).

In western music flat notes are the equivalent of komal surs and sharp notes are the equivalent of teevhar surs. However, each note in western music can have both a sharp and flat version of it, unlike in Indian Classical music.

3. Taal vs. Time Signature:

Taal is a rhythmic system in Indian Classical music. One avartan (cycle) of a taal can range between six and sixteen beats depending on the taal. Lines of a composition are generally based on the avartans of a taal. Taals are further divided into vibhags, or divisions, though each vibhag in a taal can have a different number of beats, based on where the strong (taali) and weak (khaali) beats are located within the taal. This division is determined by the bol (a way of notating the rhythmic composition of the taal).

Taals are similar to one musical phrase in western music. However, not all musical phrases are the same length. Western music is written using measures, where all measures have the same number of beats. Time signatures notate the number of beats in a measure and which type of note (e.g. quarter note, half note, eighth note, etc.) equals one beat.

How to Use the Musifyer Application

1. Click on <https://bit.ly/musifyer> to access the app.
2. Select the taal your current composition is in. You can select one of the 14 taals, including Dadra, Rupak, Kehrva, etc. This allows the program to internally analyze which key signature would best suit the taal.
3. Select the scale you would like the composition translated to. The scale you choose will determine which note Sa will correspond to.
4. Enter your phrase/composition. It does not matter if there are spaces between each sur or not when you are typing it. You can press enter and write each phrase on separate lines. Commas are used to separate beats. If there are two notes between a set of commas, those notes will be considered as dusra jaati (eighth notes). If there are four notes between a set of commas, those notes will be considered as chatsuri jaati (sixteenth notes). To notate taar saptak use ' after a sur or use . after a sur to notate mandar saptak. The current version does not yet support tisra jaati (triplets).
5. Enter submit for the code to run. If there are any errors you will see them in the third output box.
6. The program will analyze this information and translate your phrase/composition in the given key with an equivalent time signature. It will notate it as sheet music, as well as the note names in two different text formats.
7. You can click the download button on the top right corner of the sheet music to download the translated music as an image.

The screenshot shows the Musifyer application interface. On the left, there is a form with three sections: 'Original Taal' with a dropdown menu showing 'Dadra (6)' (indicated by arrow 2), 'Western Scale (to translate into)' with a dropdown menu showing 'C Major' (indicated by arrow 3), and 'Indian Classical Composition' with a text input field containing 'S,R,G,M,P,D,N,S' and 'S,r,g,m,p,d,n,s' (indicated by arrow 4). Below these fields are 'Clear' and 'Submit' buttons. The 'Submit' button is highlighted with a red arrow (arrow 5). On the right, the output area shows a musical staff with a treble clef and a 3/4 time signature, containing a sequence of notes (indicated by arrow 6). Below the staff, there are two text boxes: 'Concise western notes' showing 'Time Signature: 3/4', 'C4 D4 E4 F4 G4 A4 B4 C5', and 'C4 C#4 D#4 F#4 G4 G#4 A#4 C5'; and 'Detailed western notes' showing 'C4 quarter,D4 quarter,E4 quarter,F4 quarter,G4 quarter,A4 quarter,B4 quarter,C5 quarter', 'C4 quarter,C#4 quarter,D#4 quarter,F#4 quarter,G4 quarter,G#4 quarter,A#4 quarter,C5 quarter'. At the bottom, there is an 'Error message (if any)' field (indicated by arrow 7).