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# MELODY MATRIX

**A Web Application To Test Compositions**  
*"Compose Freely. Hear Instantly. Learn Deeply."*

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# Melody Matrix: A Web Application To Test Compositions

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### **Abstract**

Melody Matrix is a Google Chrome website that is based on the concepts covered in the Gurmat Sangeet Research Internship. This website is a tool to understand the 31 shudh raags in the Sri Guru Granth Sahib Ji, and is a tool to help compose compositions that follow the rules of the raags. Melody Matrix will be available on the Web for free. The first release has two tools: The Sur2Sound tool allows you to input a sargam and have it play back with the selected scale (such as G#, A, A#, B, C, C#), taal, and tempo. This tool is useful for testing any compositions in different scales and tempos, and is useful for composing any composition. The Raag Selector tool allows you to select one of the 31 shudh raags (like Raag Bilaval or Raag Asa), and will display information about that raag, including the Aroh, Avroh, Vadi, Samvadi, Varjit Surs, Thaata, Jaati, Mukh Ang, and Common Phrases. This tool is useful for learning about the different raags, and is useful for guiding the composition to follow the rules of a particular raag.

This website is designed and created by Mehpreet Kaur, a GSRI 2025 intern, with guidance and support from her trainer, Bhai Harlove Singh.

## Getting Started

Once you find the website, and open it up in your browser, you'll see the two tools, set in the default selection, that are available in the first release: Sur2Sound and Raag Selector.

### Melody Matrix



Scale: G#



Surs per Beat:  Taal:  Tempo: 120 BPM



Export Notes:

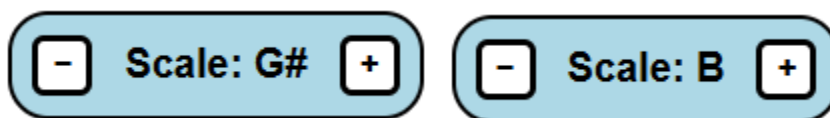


## Sur2Sound

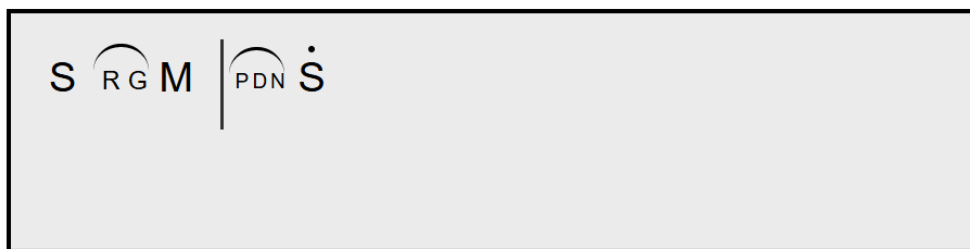
Hearing a composition, and reflecting on how it sounds, is a crucial element of composing. Being able to hear the composition in different scales and tempos allows for a better understanding of the choices that a composer has.

With that goal in mind, Sur2Sound is a tool that allows you to input a sargam using the keyboard, then hear it played back to you. This tool also allows you to change a number of things to improve your composition, such as: the scale, tempo, taal, and the surs per beat.

The initial release will allow you to change scales from G#, which is the default scale, all the way to C# using the “-” and “+” buttons.



This tool also allows you to have 2, 3, or 4 surs per beat to allow for more flexibility in composing. After you have written the 2, 3, or 4 surs, it automatically changes back to 1 sur per beat.



Surs per Beat:  ▼ Taal:  ▼ Tempo: 120 BPM

Surs per Beat:  ▼

Surs per Beat:  ▼

Surs per Beat:  ▼

You can also change the taal that the composition is in, which will format the notes you input differently. The different taals available in this initial release are Dadra, Rupak, Kehrva, Maat Taal, Jhaptal, Chartaal ki Swari, Ektaal, Jai Taal, Deepchandi, Panj Taal ki Swari, and Teentaal. Two examples of the formatting are shown below:

S	G	G		M	P	P	D		P	G	G		R	R	S	S
M	-	M		P	-	P	D		N	Ṡ	Ṡ		n	D	P	P

Surs per Beat:  Taal:  Tempo: 120 BPM

S	G	G		M	P		P	D
P	G	G		R	R		S	S
M	-	M		P	-		P	D
N	Ṡ	Ṡ		n	D		P	P

Surs per Beat:  Taal:  Tempo: 120 BPM

This tool also allows you to change the tempo to make the composition fully come to life. You can slide the slider to change the tempo from 25 bpm to 300 bpm with 120 bpm being the default.

Tempo: 74 BPM

Tempo: 211 BPM

You can also export the sargams and compositions that you make by either printing it or by exporting it to Excel.

In the print preview you will have the composition formatted similar to the display in the website, but will be in a table with the beat numbers as the header based on what taal you have chosen, and from there you can choose to print it or to save as a PDF.


**Export Notes:**  Print ▼ Export

7/24/25, 8:18 PM

Melody Matrix

1	2	3	4	5	6	7	8	9	10	11	12	13	14
S	G	G	M	P	P	D	P	G	G	R	R	S	S
M	M	M	P	P	P	D	N	S'	S'	n	D	P	P
G	M	P	-	m	P	D	N	D	P	M	G	R	S

Print 2 pages

Destination  Save as PDF ▼


Pages All ▼

Layout Landscape ▼

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More settings ▼

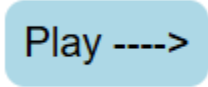
In Excel it is similar, with the beat numbers in the first row and your composition in the rows following.

**Export Notes:**  Excel (.xlsx) ▼ Export

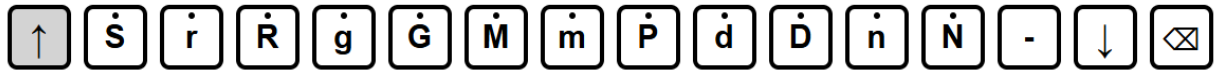
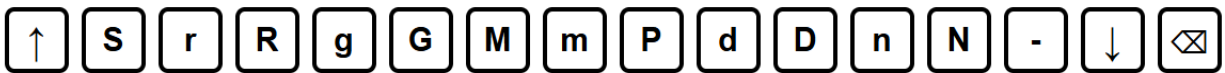
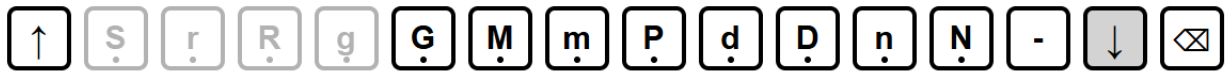
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	S	G	G	M	P	P	D	P	G	G	R	R	S	S
3	M	M	M	P	P	P	D	N	S'	S'	n	D	P	P
4	G	M	P	-	m	P	D	N	D	P	M	G	R	S

This tool is especially beneficial for saving your work and sharing it, as well as adding a shabad to sing with your composition, which is possible to edit in with the Excel export.

Once you have written a sargam or composition, you can press the “Play” button. Then, you can make changes to the composition, and hear it again.



You can also change the saptak with the up or down arrows.



## Raag Selector

The Raag Selector tool allows you to select one of the 31 shudh raags from Sri Guru Granth Sahib Ji, and it shows you information about the raag, including: the Aroh, Avroh, Vadi, Samvadi, Varjit Surs, Thaata, Jaati, Mukh Ang, and Common Phrases.

This tool is useful for learning about the different raags, or for a reference to make sure that your composition is following the raag you want it to.  
See two images below:

Select A Raag

### **Raag Dev Gandhari**

Raag Dev Gandhari is an alaap pardhan raag, and is a combination of Raag Asa and Asavari where alaaps can follow the same chalan as Raag Asa with vakrit d and n, giving the raag a distinct identity.

**Aroh:** SRMPDŚ

**Avroh:** ŚNDP, MP, dndP, MGRS

**Vadi:** M

**Samvadi:** S

**Anuvadi:** RGDN

**Varjit Sur:** d, D, n, N in Aroh

Asavari Thaata

**Audav-Sampoorna** Jaati

**Mukh Ang:** d, ndp, MG, SRM, GSRGS

**Common Phrases:** MPdndP, MGRGS, RMPD, ŚNDPMP

Select A Raag

### **Raag Jaitsri**

Raag Jaitsri is an alaap and taan pardhan raag, and is very similar to Shree Raag and differs by the way S-P is sung.

**Aroh:** SGmPNS

**Avroh:** ŚNdPmGrS

**Vadi:** G

**Samvadi:** N

**Anuvadi:** SrmPd

**Varjit Sur:** r, d in Aroh

Poorvi Thaata

**Audav-Sampoorna** Jaati

**Mukh Ang:** S, G, P, mdP, mG, mG, rS

**Common Phrases:** NSGmP, mPNdP, NSGrS, GmPmGrS, PmdP, ŚNdPmGPGrS