Author's Note

Hello new Lilypond/Frescobaldi user! This guide is designed for users who are brand new to the Lilypond notation system and the Frescobaldi interface.

Many musicians who have experience using traditional GUI-manipulation notation software (such as Finale or Sibelius) are intimidated or frustrated by the comparatively complex installation and basic notational approach of Lilypond. The goal of this guide is to remove some of these barriers to entry experienced by new Lilypond users by providing a step-by-step guide to show the basics of notating with Lilypond in the Frescobaldi editor.

Frescobaldi isn't the focus of this guide; it's simply the interface/editor that I feel makes the Lilypond program most accessible. If you want to learn Lilypond without using Frescobaldi, this guide should still be helpful for you, as the text input will be the same. However, you will be responsible for figuring out the compilation process for your environment. Check out the Lilypond Docs for help with this.

If you have experience writing basic music with Lilypond and simply want to learn the Frescobaldi interface, this guide will not be helpful for you. I would recommend that you consult the Frescobaldi User Manual on the Frescobaldi website for your needs.

This guide is divided into a series of tutorials, separated by the complexity of the musical content and the musical elements included. The tutorials are ordered sequentially; if you are brand new to Lilypond, you should begin with Absolute Basics – C major scale. See the Table of Contents for the complete list of tutorials and musical concepts covered.

I use a Macintosh computer, and the screenshots included herein reflect that. You do not need to be using a Mac to use Lilypond or Frescobaldi; both products support Mac OS, Windows, and several different Linux distributions.

IMPORTANT NOTE: This guide assumes that you have a working Frescobaldi/Lilypond environment on your computer. It doesn't provide instructions on downloading and installing the software; for guidance on installation and setup, I recommend consulting Lilypond's Download page first, and then Frescobaldi's Download page. If you run into any issues getting your environment set up, consulting the communities for each on their respective websites should prove helpful.

Getting Started with Lilypond

Table of Contents

Tutorial 0 – Absolute Basics (C major scale)

Welcome to the beginning of your Lilypond journey! This is the first tutorial of this guide, covering the most basic and important notational principles. The concepts covered in this tutorial include:

1. Entering text input and viewing graphical output
2. Adjusting pitches up and down by octave
3. Lilypond's default behaviors for basic input
4. `\relative`

Before we can begin, you must have your Lilypond/Frescobaldi environment set up and functional. This tutorial doesn't provide instructions on downloading and installing; for guidance on installation and setup, I recommend consulting Lilypond's Download page first, and then Frescobaldi's Download page. If you run into any issues getting your environment set up, consulting the communities for each on their respective websites should prove helpful.

Let's get started!

Compiling (entering text input and viewing graphical output)

Launch your Frescobaldi app. Your screen should look like this:
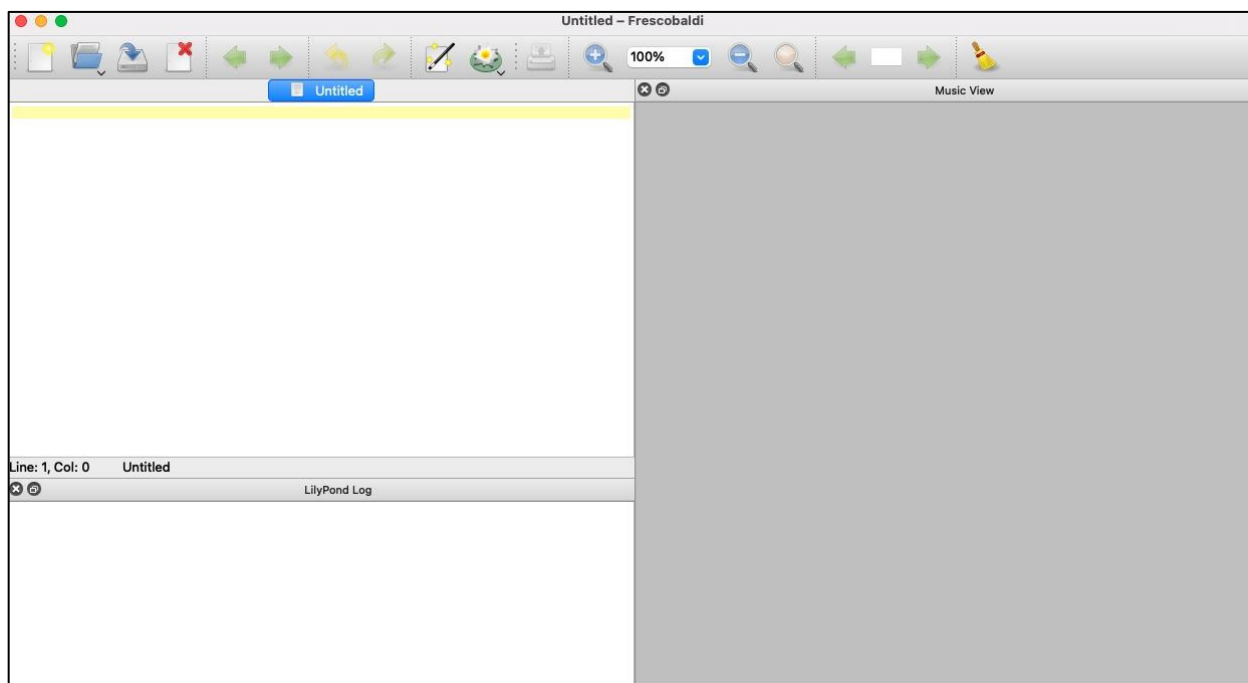
The Frescobaldi user interface is divided into three sections:

1. **The text editor**. This is the top left portion of the screen, with the yellow bar at the top. This is where you'll be doing most of your work.
2. **The LilyPond log**. This is the bottom left portion of the screen, titled appropriately. Each time you compile our work, you will see messages in this area. Most of the time you won't need to read them, but sometimes you will.
3. **The Music View**. This is the right side of the screen. It's just a gray box for now, but as soon as you enter some Lilypond notation in the text editor and compile, this is where you will see your graphical output (sheet music).

You should see a blinking cursor in the yellow bar in the text editor. If you don't, click in that area. This is where we will type our first note. Type:

```
{
c
}
```


To be clear, this is an opening/left curly brace (to the right of the 'P' key on your keyboard), a lowercase 'c', and a closing/right curly brace. I have them all on separate lines for the sake of organization; it may not seem necessary now, but as your music gets longer and more complex, it will become much easier to visually parse.

Next, we need to engrave our work. Put simply, engraving is the process of Lilypond compiling our text input and turning it into graphical output. The **engrave** button is the Frescobaldi logo (it looks like a flower/lily) on the top navigation bar.

Click the **engrave** button and you should see this:
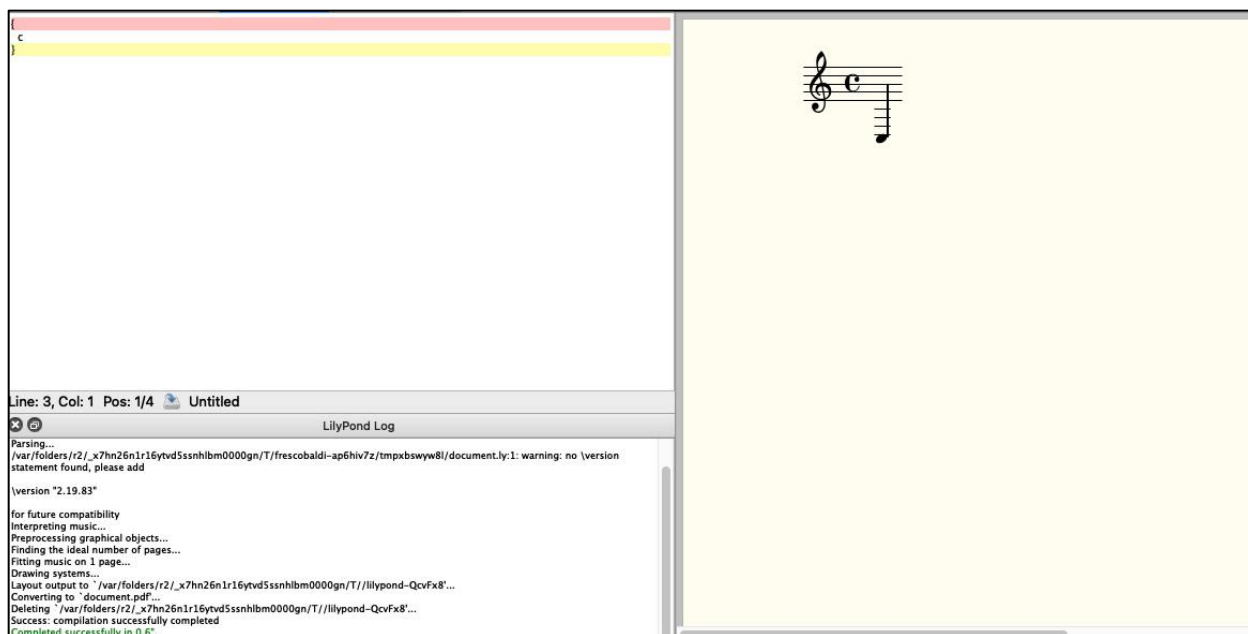
If your screen does not look like this, something is wrong with your Lilypond/Frescobaldi setup. If you are having issues, this tutorial cannot help you address it. Consider doing a Google search with your specific problem, or head to the Lilypond community forum to ask for help. If your screen does look like mine, continue on.

Congratulations on your first note! Let's break down what we did a little bit more.

- All musical material in Lilypond exists inside a set of curly braces {}. Sometimes you will write outside of the curly braces, but musical elements like notes, articulations, and dynamics are written inside the curly braces.
- When an octave is not specified (more on this very soon), Lilypond defaults to the octave below middle C. Thus, when we simply typed 'c', the output was a C3.
- When clef, note durations, time signature, and key signature are not specified (more on this in later tutorials), Lilypond defaults to a single staff with treble clef, quarter notes, common time, and the key of C major/A minor.

Before we move on, let's take a quick look at our Lilypond log (bottom left). There are no breaking errors (errors that prevent successful compilation), but there is a message we should read:

Lilypond wants us to specify the software version that we are using for reasons of future compatibility. It's good practice to do this, so let's take care of this now. At the time of writing, I am using Lilypond \version "2.19.83" but check to see what version you are using. To

resolve this error message, type or copy/paste the line that begins with `\version` and insert it into the text editor above the opening curly brace, like so:

```
\version "2.19.83"
{
  c
}
```

Click the **engrave** button again. You won't see any change in the output, but if you check the Lilypond log again the warning will be gone.

Now, let's move on to more music!

Adjusting pitches up or down an octave

Lilypond defaults to the octave below middle C, but it's quite easy to adjust the octave.

To move a pitch UP by an octave, use the apostrophe (') symbol after the pitch.
To move a pitch DOWN by an octave, use the comma (,) symbol after the pitch.

Let's try moving our very low C up one octave:

```
\version "2.19.83"
{
  c'
}
```

Now let's take the apostrophe off and try lowering it an octave from our original pitch:

```
\version "2.19.83"
{
  c,
}
```

To adjust pitches by multiple octaves, add an apostrophe or comma for each octave:

```
\version "2.19.83"
{
  c c' c'' c'''
}
```

Now that we have some basics down, our next task is to compose a C major scale, ascending and descending, starting on C4. It will look like this:

Try it yourself: Using what you've learned so far, <u>try doing this task on your own</u>, then scroll down to see the solution. If you get stuck or confused, scroll down to see the solution.

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Were you able to get output that looked like mine? If you weren't, here is the text input:

```
\version "2.19.83"
{
  c' d' e' f' g' a' b' c'' b' a' g' f' e' d' c'|
}
```

If you were able to do this, good job! If you weren't, do not worry; this is not an indicator of your intelligence or musical ability. There will be plenty more opportunities to practice and succeed.

As you were typing the input, did you think to yourself, "it sure is a pain to have to type an apostrophe after every pitch."? If you did, you'll appreciate our next topic – \relative.

/relative

`/relative` mode is a very useful feature of Lilypond. When active, the output decides the octave of a pitch based on whichever octave is closest to the previous pitch. In other words, if `/relative` mode is on and your first note is a C4 (c' in Lilypond notation), if you just type "e" as your second note Lilypond will display it as E4 (a major third above), because that is the closest "e" to the previous note.

This saves a lot of time and tedious typing! Although you will occasionally have leaps that will require you to manually use ' and , `/relative` mode is a useful option to include in most of your projects. When `/relative` mode is active, the only time you have to specify your general range is on the very first note.

To make `/relative` mode active in your document, insert `/relative` above the curly braces, like so:

Tip: Remember to use the backslash \ symbol (above the Enter key), **not** the forward slash / (next to the period . key).

Try it yourself: Using `/relative` mode, rewrite your C major scale from before, in the same octave. You should find that it requires less keystrokes.
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Were you able to do it? Your output should look exactly the same as before, but now your input should look like this:

```
\version "2.19.83"
\relative
{
 c'defgabcbagfedc
}
```

It's great, right? You only had to use one octave designation for the entire scale.

This concludes our Absolute Basics tutorial! Hopefully you have a grasp on the rudiments of Lilypond. I *strongly* suggest that you take some time and try writing some more music with Lilypond as practice. It can be a simple melody, something you know or something you are improvising, but applying what you've learned is imperative for retention.

In the next tutorial, we will be covering some more very foundational concepts, including note durations, rests, and accidentals.

Tutorial 1 – Notation Essentials (God Save the Queen & a National Anthem)

Welcome to the next tutorial in this guide! In this section, we cover some essential topics in music notation, including:

1. Note durations
2. Rests
3. Clefs
4. Time Signatures
5. Key Signatures
6. Accidentals

To begin with, open a new file in Frescobaldi with the `\version` text at the top and `\relative` mode enabled, like so:

```
\version "2.19.83"
\relative
{

}
```

Note durations

As we learned in Tutorial 0, Lilypond's default note duration is the quarter note. However, Lilypond supports note durations from whole notes through 128th notes. Note durations are defined with a single number; "1" for whole notes, "2" for half notes, "4" for quarter notes, and so on.

To specify the duration of a note, type the desired duration number after the pitch.

For example, "a2" is a half note A and "e8" is an eighth note E.

```
\version "2.19.83"
\relative
{
e'8
}
```

If a duration is not specified for a note, the previous duration is used for the next note.

```
\version "2.19.83"
\relative
{
c'1 | d2 e4 f8 f | g16 g g g a32 a a a b64 b b b b b b b c2
}
```

Dots

To add an augmentation dot to a note, add a period (.) after the pitch and duration.

```
\version "2.19.83"
\relative
{
g'2. a4 | b4. a8 g4. a8 | b8. a16 g8. a16 b8. a16 g8. a16 | g1
}
```

Please note: Even if your desired note duration is the dotted version of the previous note, you must still specify the full value.

Rests

To create a rest, use the letter "r" instead of a pitch and then specify the duration.

For example, "r4" is a quarter rest and "r16" is a sixteenth note rest.

```
\version "2.19.83"
\relative
{
  a'16 a r8 g16 g r8 a16 a r8 c4 a8 r8 r4 r a16 g e a
}
```


Clefs

Clefs can be specified and changed as often as necessary.

To specify or change a clef, use the `\clef` keyword, followed by the desired clef name.

```
\version "2.19.83"
\relative
{
  \clef treble
  c'd e f g a b c b a g f e d c2
  \clef tenor
  c,4 d e f g a b c b a g f e d c2
  \clef bass
  c4 d e f g a b c b a g f e d c2
}
```


Time Signatures

Time signatures can be specified and modified in a manner similar to clefs.

To notate a time signature, use the `\time` keyword, followed by the desired time signature.

```
\version "2.19.83"
\relative
{
  \time 3/4
  c" b a g a b
  \time 6/8
  c b8 a4 g8 a4 b8 c4 d8
  \time 2/2
  c2. a4 g2 e c1
}
```


Try it yourself: Using your newfound knowledge of note durations, dots, rests, and time signatures in Lilypond, <u>notate My County 'Tis of Thee (also known as God Save the Queen) in the key of C major.</u> If you forget something you learned, feel free to scroll back up to refresh your memory.
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My notation of God Save the Queen:

```
\version "2.19.83"
\relative
{
  \time 3/4
  c" c d b4. c8 d4 e e f e4. d8 c4 d c b c2 r4
  g'4 g g g4. f8 e4 f f f f4. e8 d4 e f8 e d c e4. f8 g4 a8 f e4 d c2.
}
```


Key Signatures

Much like time signatures, key signatures can be specified and modified within the brackets {}.

To notate a key signature, use \key, followed by the tonic pitch, followed by \major or \minor.

For example, the keys of C minor and G major would be written as \key c \minor and \key g \major respectively.

```
\version "2.19.83"
\relative
{
  \key c \minor
  c'
}
```



```
\version "2.19.83"
\relative
{
  \key g \major
  c'
}
```

Key signatures can be changed as often as desired. To change a key signature, start a new line and follow the instructions above.

Please note: In Lilypond, note entry is completely unrelated to the written key signature. For example, if you are writing in G major and you type the pitch "f", Lilypond will notate it as an F with a natural sign. All sharps and flats must be specifically notated, as explained in the next section.

Accidentals

The default method for notating accidentals in Lilypond is based on a note naming convention prevalent in Germany and the Netherlands.

To add a sharp (#) to a note, add the suffix "is" after the pitch.
To add a flat (b) to a note, add the suffix "es" after the pitch.

For example, in Lilypond the note "F#" would be notated as "fis", and the note Bb would be notated as "bes".

```
\version "2.19.83"
\relative
{
c' d e fis gis ais c2
}
```



```
\version "2.19.83"
\relative
{
c' des ees e ges g a bes c1
}
```


As stated in the previous section, the notated key signature has no bearing on the input of accidentals. If you are writing a piece in which the note B-flat appears frequently, you should be prepared to type "bes" a lot.

At this point, we've covered several different elements that are appended to the pitch name – note duration, augmentation dots, accidentals, and octave designations. There is a specific order in which these must be written in order for Lilypond to compile correctly. The order is below, starting with the leftmost element:

Pitch > Accidental > Octave designation > Note duration > Augmentation dot


```
\version "2.19.83"
\relative
{
bes"2. r4|
}
```

Try it yourself: At this point, you should feel ready to take on a lot of basic music notation! For this next exercise, <u>notate the melody of a national anthem of your choice</u>.

Please note: If you select The Star-Spangled Banner (national anthem of the USA), you need to begin with a pickup/partial measure. Click here (link to future section) to learn how to notate this.

EXTRA CREDIT: To get lots of practice with accidentals, select a key signature that contains 4 or more sharps or flats. ☺

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O Canada in E major:

```
\version "2.19.83"
\relative
{
  \key e \major
gis'2 b4. b8 e,2. fis4 gis a b cis fis,2. r4 gis2 ais4. ais8 b2. cis4 dis dis cis cis b2 r4 fis8. gis16
a4. gis8 fis4 gis8. a16 b4. a8 gis4 a8. b16 cis4 b a gis fis2 r4 fis8. gis16
a4. gis8 fis4 gis8. a16 b4. a8 gis4gis fis b b8 ais gis ais b2. r4
gis2 b4. b8 e,1 a2 cis4. cis8 fis,1
b2 c4. c8 cis4 a gis fis e2 fis2 gis2. r4
b2 e4. e8 cis4 a gis fis b2 dis ,e1

}
```

The Star-Spangled Banner in D-flat major:

```
\version "2.19.83"
\relative
{
\key des \major
\time 3/4
\partial 4 aes'8. f16
des4 f aes des2 f8. es16 des4 f, g aes2 aes8 aes f'4. es8 des4 c2 bes8. c16 des4 des aes f des aes'8. f16
des4 f aes des2 f8. es16 des4 f, g aes2 aes8 aes f'4. es8 des4 c2 bes8. c16 des4 des aes f des f'8 f
f4 ges aes aes2 ges8 f es4 f ges ges2 ges4 f4. es8 des4 c2 bes8. c16 des4 f, g aes2 aes4
des des des8 c bes4 bes bes es ges8 f es des des4 c bes8 aes des4. es8 f ges aes2 des,8 es f4. ges8 es4 des2.
}
```

This concludes our <u>Notation Essentials</u> tutorial! Just like before, I strongly recommend helping your learning by getting more practice (notating more music!). Try Ode to Joy, or another national anthem, or something along those lines.

In the next tutorial, we will be covering another foundational concept, expressive markings.

Tutorial 2 – Expressive Markings (*Le Cygne [The Swan]*)

Welcome to the next tutorial in this guide! In this section, we cover basic expressive markings, including:

1. Ties
2. Slurs
3. Articulations
4. Dynamics

To begin, open a new file in Frescobaldi with the `\version` text at the top and `\relative` mode enabled, like so:

```
\version "2.19.83"
\relative
{

}
```

Now, let's add a simple melody or set of notes for demonstration purposes. You can write whatever you wish here, but I'll write a C major scale, one octave, ascending and descending:

```
\version "2.19.83"
\relative
{
c'defgabcbagfedc2
}
```


Ties

A tie is distinct from a slur; ties connect two or more notes of the same pitch, while slurs connect two or more notes of differing pitches.

To create a tie, add a tilde (~) to the first of the two notes being tied. If more than two notes are being tied, add a tilde (~) to every note in the group except the last one.

For ties only (does not apply to slurs), subsequent pitches may be omitted; only the duration needs to be specified.

For example, a half note "c" tied to a quarter note "c" could either be written as "c2~ c4" or "c2~4".

See an example of ties:

```
\version "2.19.83"
\relative
{
c' d e f g a b c b a g f e d c2~ 1
}
```


Slurs

A slur is distinct from a tie; slurs connect two or more notes of differing pitches, while ties connect two or more notes of the same pitch.

To create a slur, add an opening parenthesis before the second note of the slurred group and a closing parenthesis after the last note of the slurred group.

Stated differently, opening and closing parenthesis define a group of slurred notes, except the opening parenthesis begins after the first note.

```
\version "2.19.83"
\relative
{
c' (d e f) g (a b c) b (a g f) e (d c2)
}
```
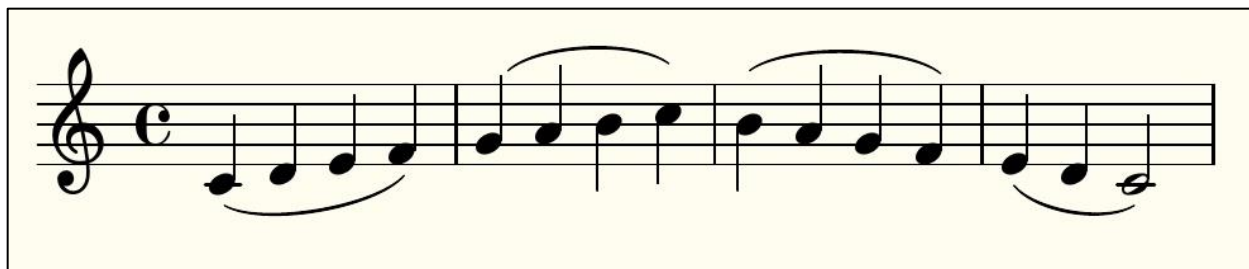
Articulations

Articulations are created by adding two characters after the pitch of a note. Here are some examples of how to implement common articulations:
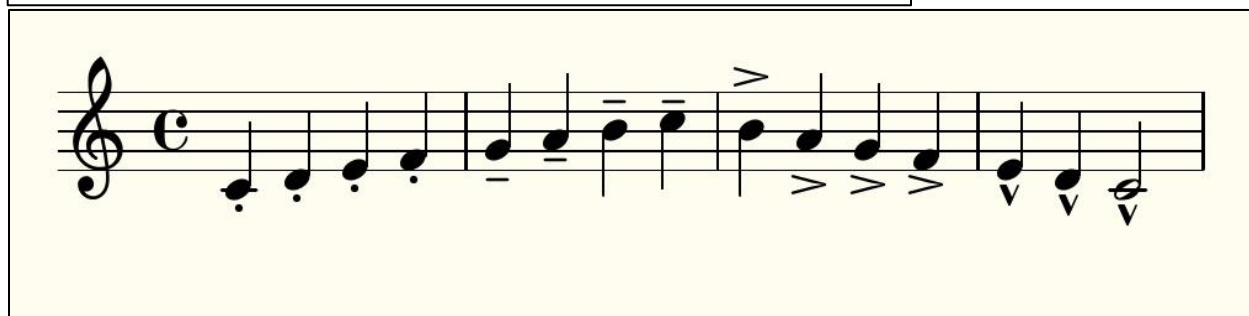
To create a staccato articulation, add a dash and a period (-.) after the desired pitch.
To create a tenuto articulation, add two dashes (--) after the desired pitch.
To create an accent, add a dash and a greater than sign (->) after the desired pitch.
To create a marcato accent, add a dash and a caret (-^) after the desired pitch.

```
\version "2.19.83"
\relative
{
c'-. d-. e-. f-. g-- a-- b-- c-- b-> a-> g-> f-> e-^ d-^ c2-^
}
```


Dynamics

To notate dynamic markings, add a backslash (\) followed by the marking to the desired note(s).

```
\version "2.19.83"
\relative
{
c'\p d e f g\mp a b c b\mf a g f e\f d c2
}
```


To start a crescendo, add a backslash and an opening angle bracket (\<) to a note.
To start a decrescendo, add a backslash and a closing angle bracket (\>) to a note.

Both crescendi and decrescendi automatically close with the next dynamic mark, or backslash + exclamation point (\!) can be used.

```
\version "2.19.83"
\relative
{
c'\p\< d e f g\mf\< a b c b\f\> a g f e\mf\> d c2\p
}
```



```
\version "2.19.83"
\relative
{
c'\< d e f g a b c\! b\> a g f e d c2\!
}
```

Try it yourself: This tutorial has focused on expressive devices, so let's write something lyrical that will allow us to practice what we've learned.

Your task is to notate a portion the solo/melody part of *Le Cygne (The Swan)*. It's not necessary to notate the entire piece – just the first minute or so will suffice. If you aren't familiar with *Le Cygne*, either click here to listen or select another piece of your choosing that:
1. Has a variety of musical expression that you can notate, and
2. Is at least 60 seconds long when performed.

In addition to notes, rhythms, and other essentials, make sure you include dynamic markings, dynamic shaping (crescendi and decrescendi), articulations, ties, and slurs.

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```
\version "2.19.83"
\relative
{
  \time 6/4
  \clef tenor
  \key g \major
  g'\p( fis b,) e (d g,\<) a2\mf\>~8 b-- c2--\p r4 | e,2 fis8\< (g) a (b c d e fis) | b2.\mf\> r2.\! |
  g4\mp (fis b,) e (d g,\<) bes2\mf\>~8 ces des2\! r4  |
  ges,4.\mp\< aes8 (bes  ces) (des eeses fes ges aes bes) | d2.->\f\> r2.\!
  d4\mf b g e fis g d2\>~8 e-- fis2--\! r4 |
  c'\mf a f d e f c2\>~8 d-- e2--\! r4 | e a, b c2 d8\< e fis2.->\f\> e\! |
  e4 a, b cis2 d8\< e f2.\f\> fis2.\!
```