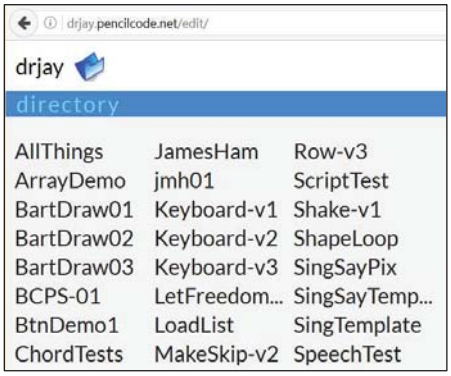
Teaching a Computer to Sing

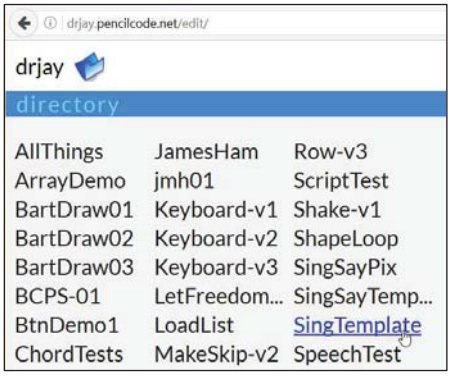
University of Massachusetts Lowell
Bartlett Community Partnership School

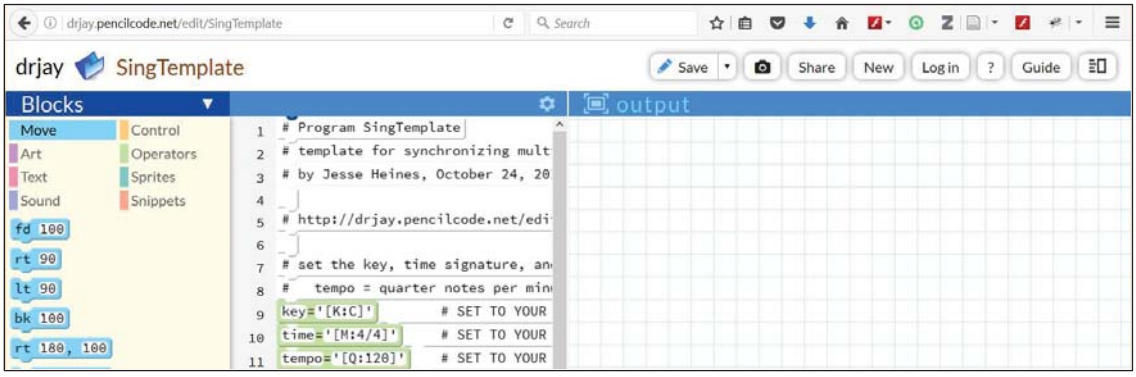
Using the Sing Template

1. Open your browser and go type **`drjay.pencilcode.net`** in the address field. When that page opens you will see a list of programs written by Jesse.

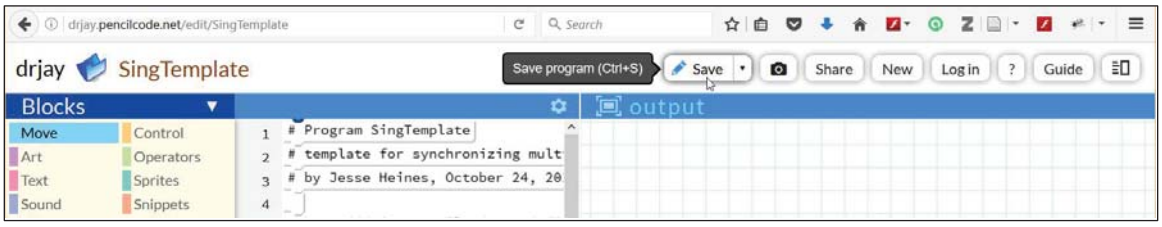


2. Click **`SingTemplate`**. This will open the **`Sing`** template program.





3. With the `SingTemplate` open, click the **`Save`** button.

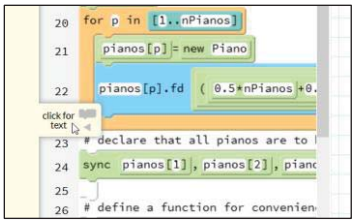


4. A dialog box named **`Log in to save.`** will pop up. Under **`Name: drjay`** click **`Not me? Switch user.`**

5. The dialog box will change to **`Choose an account name to save.`**

6. Enter your own name and password and click the **`OK`** button. This saves the template to your own account.

7. Click the **`click for text`** button. This provides access the full text of the program.



drjay.pencilcode.net/edit/SingTemplate

drjay SingTemplate

{} code

```
# Program SingTemplate
# template for synchronizing multiple parts
# by Jesse Heines, October 24, 2016

# http://drjay.pencilcode.net/edit/SingTemplate

# set the key, time signature, and tempo
#   tempo = quarter notes per minute
key='[K:C]'        # SET TO YOUR KEY
time='[M:4/4]'     # SET TO YOUR METER
tempo='[Q:120]'    # SET TO YOUR TEMPO

# combine key, time, and tempo into a variable
#   named prefix simply for convenience
prefix=time+key+tempo

# initialize up to 6 pianos to play each part
nPianos = 3   # SET THIS TO THE NUMBER OF PIANOS YOU WANT
pianos=[]
for p in [1..nPianos]
  pianos[p]=new Piano
  pianos[p].fd (0.5*nPianos+0.5-p)*150
# declare that all pianos are to be synced
sync pianos[1],pianos[2],pianos[3],pianos[4],pianos[5]
,pianos[6]

# define a function for convenience, to which
# we can pass which piano to play (p) and the
# notes to play on that piano
sing = (p,notes) ->
  pianos[p].play prefix+notes

# REPLACE THE FOLLOWING WITH YOUR OWN CODE
# start coding the song here in the format shown
sing 1, "C D E F G A B C'"
sing 2, "E F G A B C' D' E'"
sing 3, "G A B C' D' E' F' G'"
```

8. You can now edit the text as follows.

   a. If necessary, replace the C key letter in line 9 with the key letter of your song.

```
 9  key='[K:C]'        # SET TO YOUR KEY
```

   b. If necessary, replace the 4/4 time signature (meter) in line 10 with the time signature of your song.

```
10  time='[M:4/4]'     # SET TO YOUR METER
```

   c. If necessary, replace the 120 beats per minute tempo in line 11 with the tempo of your song.

```
11  tempo='[Q:120]'    # SET TO YOUR TEMPO
```

   d. If necessary, replace 3 in line 18 with the number of pianos (parts) that your song needs.

```
18  nPianos = 3        # SET THIS TO THE NUMBER OF PIANOS YOU WANT
```

   e. Starting at line 34, replace the sample **`sing`** lines with the notes that you want to play on each piano in your program.

```
32  # REPLACE THE FOLLOWING WITH YOUR OWN CODE
33  # start coding the song here in the format shown
34  sing 1, "C D E F G A B C'"
35  sing 2, "E F G A B C' D' E'"
36  sing 3, "G A B C' D' E' F' G'"
```

   You may add as many **`sing`** lines as you like, but they must all follow this pattern:

`sing` ***piano number*****`, "`*****list of notes*****`"`**

   - The first word must be **`sing`**.
     - (This calls the **`sing`** function defined at line 29.)
     - **`sing`** must be followed by a space (press the space bar).
   - Next, type the number of the piano you want to use.
     - Follow that with a comma (`,`) and a space.
   - Then type a list of notes inside double quotes (").
     - You can put as many notes inside the double quotes as you like, but we recommend that you only put 1 or 2 measures of notes on each line.

   Remember that each piano (part) in your program is *independent*. That is, all the pianos (parts) will play at the same time. If you want one part to start before another, you must add rests to delay the second part.

Do not change any other code in the `Sing` template.
Doing so will prevent it from working properly.