#include <cs50.h>

#include <stdio.h>

#include <string.h>

#include <ctype.h>

#include <stdlib.h>

#include <math.h>

#include "helpers.h"

// fraction formatted as X/Y to eighths

int time(string fraction)

{

// TODO

int beat = fraction[0] -'0';

int count = fraction[2]-'0';

return ((16 / count) \* beat/2);

}

// Calculates frequency (in Hz) of a note

int frequency(string note)

{

char note\_letter = note[0];

char octave = note[strlen(note) - 1];

// CHECKING IF NOTE INPUT IS BETWEEN RANGES AVAILABLE ON A KEYBOARD

if ((note\_letter < 'A' || note\_letter > 'G' ) || (octave < '0' || octave > '8'))

return 1;

int middle\_hz = 440; //STARTING POINT FOR MIDDLE A

int full\_step = (octave - '4'); //CHECKS DISTANCE OF OCTAVE WITH MID 'A'

int hz = round(middle\_hz \* pow(2, full\_step));

float a = 0., b = 2., c = -9., d = -7., e = -5., f = -4., g = -2.; //STEPS BETWEEN SEMITONES ON KEYS

int freq;

float x;

switch (note\_letter)

{

case 'A':

x = a;

break;

case 'B':

x = b;

break;

case 'C':

x = c;

break;

case 'D':

x = d;

break;

case 'E':

x = e;

break;

case 'F':

x = f;

break;

case 'G':

x = g;

break;

default:

return 1;

}

int raw\_hz = round(hz \* pow(2, x/12));//\*Until I figure it out, passes directly through to return

int res = (hz \* pow(2, x/12));//\*Until I figure it out(passes to through to accidentals)

//CHECKS IF ACCIDENTALS ARE PRESENT IF SO RAISE/LOWER 1 SEMITONE FOR '#' AND 'B'

if (note[1] == '#')

{

freq = round(res \* pow(2., 1./12.));

return (freq);

}

else if (note[1] == 'b')

{

freq = round(res / pow(2., 1./12.));

return (freq);

}

return (raw\_hz);

}

// Determines whether a string represents a rest

bool is\_rest(string s)

{

// TODO

if (s[0] == '\0')

{

return true;

}

return false;

}