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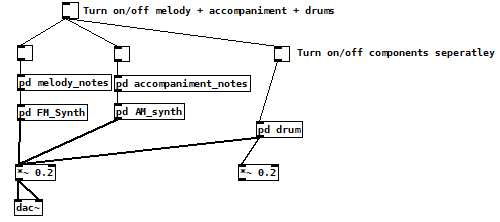
דוד זף 207875147

**Music Project**

**Background music for gameplay and for main menu:**

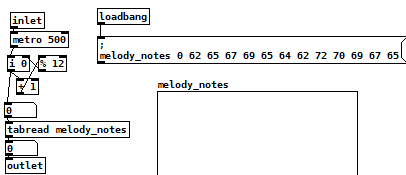
the background music for the main menu and the gameplay were made in the following way:

The Music has 3 components: melody, accompaniment, and drums.



For the melody and accompaniment notes we used a sequencer, we designed the notes of the melody to synchronize with the notes of the accompaniment by adjusting each respective notes and metro.

Melody sequencer:



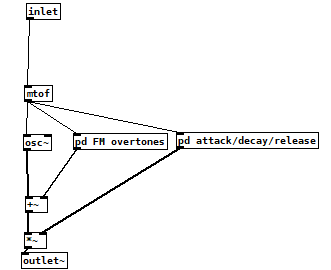
Accompaniment sequencer:

A screenshot of a computer

Description automatically generated

For the melody we used FM synthesis techniques by combining the main audio with overtones we also added to the noise a basic envelope to make the sound more colorful.

Fm synth:

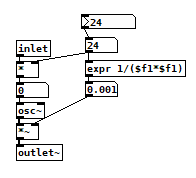


Fm overtones:

A screenshot of a computer program

Description automatically generated

Each overtone was given a unique frequency and amplitude:



The accompaniment is very similar to the melody in terms of its structure only instead of using FM synthesis we used AM synthesis.

TODO: EXPLAINS DRUMS

**Alien killed and spaceship hit sound effect:**

**For the alien killed and spaceship hit sound effect, we used subtractive synthesis by making use of bp and hip objects, this allowed us to diminish frequencies from below and from above giving the sound a crashing like effect, in the spaceship hit effect we used the line object to make the sound more delayed in order to differentiate it from the kill sound effect.**

**LAZER sound effect:**

**For the Lazer sound effect we combine the use of a square wave combined with a envelope using the line object to create an effect that sounds like a laser gun blast.**

**RETRY /PLAY sound effect:**