

**Problem 1: Linear Algebra**

Music synthesized through 15 notes have a good simulation of the harmonica music, but not good as the original one, since it lost some of the continuity. As for the chord accompaniment, it does not have a good reconstruction as harmonica. This is because the 15 notes provided are mainly harmonica. When the original music is projected onto these 15 bases, the reproduction of the harmonica music will be better and the chord accompaniment.