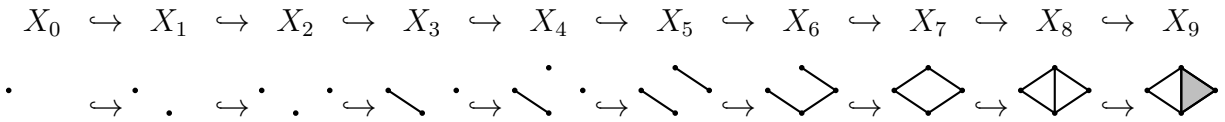
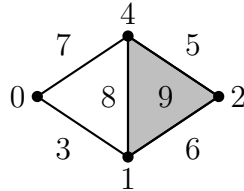


TOPOLOGICAL DATA ANALYSIS WORKSHEET 2
 PETER BUBENIK

Exercise 1. Consider the following filtered simplicial complex.



- (a) Write down boundary matrices for ∂_1 and ∂_2 , ordering the simplices using the order they appear in the filtration.
- (b) Apply the persistence algorithm to reduce these matrices using column operations.
- (c) Give the birth–death pairs for H_0 and H_1 .
- (d) Plot the corresponding barcode and persistence diagram.

Date: August 2022.

