FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE, PLANNING AND GEOMATICS

GEOMATICS DIVISION

Numerical Methods Tutorial APG3013F)

1 The problem

Shown in figure 1 is a sample sequence of polars starting at known point P1. Point P1 and its covariance matrix are known. The distance and directions between the points have been measured and their variances are known. The distances and directions are uncorrelated.

A general program has to be developed that determines the covariance matrix

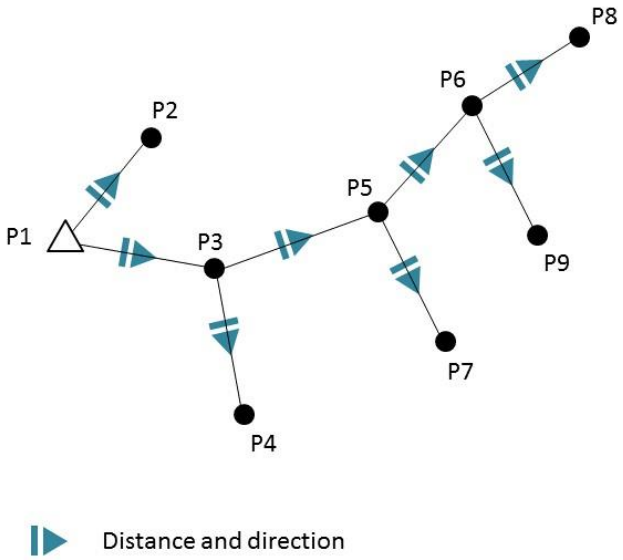

Figure 1: Sequential polars

Methodology

Your proposed solution will be assessed based on:

1. Your simulation of the data.
2. Your computation of the coordinates of points P2, P3, P4, etc.
3. Write a program that will determine the covariance matrix of the points P2, P3, P4, etc.,