**Part One: The Symmetric Pascal Matrix**

1. Why is it justified to use the LU or QR−factorizations as opposed of calculating an inverse matrix?
2. What is the benefit of using LU or QR−factorizations in this way? (Your answer should consider the benefit in terms of conditioning error.)

**Response**

1. LU and QR have much less error compared to the inverse of a matrix. A-1can be much further away than a more accurate LU and QR. Each iteration of inverse, you are solving a set of linear equations in addition to multiplying matrices. Therefore, LU and QR are much more useful and efficient to use, as you can decompose and use substitution.