MTH 337, Sample Quiz 6
Spring 2021

You will have **15 minutes** to take the actual quiz.

1. Write a function to create a bullseye array given a positive integer "bullseye value" k . This array has a k at the very center, surrounded by concentric squares of decreasing integers. For example, the bullseye array for input of 4 would be

$$\begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ 1 & 2 & 2 & 2 & 2 & 2 & 1 \\ 1 & 2 & 3 & 3 & 3 & 2 & 1 \\ 1 & 2 & 3 & 4 & 3 & 2 & 1 \\ 1 & 2 & 3 & 3 & 3 & 2 & 1 \\ 1 & 2 & 2 & 2 & 2 & 2 & 1 \\ 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{bmatrix}$$

2. Plot the above bullseye array as an image using the inferno color map.

3. Search the internet for a picture of a cute penguin, save the image to your computer, and then load the image as 2D numpy array. Finally, plot the penguin picuture in grayscale and save the grayscale image using the imsave function.