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CECS 326 Sec 02

Professor Xu

Project 3 “Banker’s Algorithm” Report

For this project I decided to do it in Python. When doing research as to how to do this project I realized you can either go the no library route, or you can use libraries to help aid you when working on your class. Due to this, I decided to work with the numpy library as I am most comfortable with that library and how arrays work through that library due to my Numerical Analysis course which requires us to use numpy on a weekly basis. Although for the previous projects I didn’t use a class I decided to do so for this project for better organization, in this class we have our def __init__ , def is_Safe, and def request_resources. Outside of our class we have our def main which contains our driver code. Our def is_Safe is required to check if our sequence would still allow us to be in a safe state or not, this comes in handy when starting the implementation of def request_resources. In our def request_resources, we have two for loops in the beginning which makes sure whether or not there are enough resources before beginning the process of allocation. Once we can start allocating resources, we then go through the process of using our previously defined function of is_Safe, as we now need to check if those allocated resources make us enter an unsafe state. If we do enter an unsafe state, then we send out an error explaining how that request will result in an unsafe state and we roll back the resources we tried to allocate. Our def main, allows for two inputs from the user, what process id they wish to work with and what their request is. I tried my best to make sure that users aren’t able to select an

invalid process id, or give us a sequence in the wrong format. If they do, they will be given an error and a chance to try again.

This project was forsure one of the most rewarding as I was able to learn new coding methods and techniques from the numpy library and from Python such as how eval works and doing something like “if not finish[i] and all(self.need[i][j] <= work[j] for j in range(self.num_resources)):” Which I haven’t done before, in the end this project has been able to push my Python knowledge to the next level which I am happy for.

YouTube Link: https://youtu.be/PSfOPQzwyw4