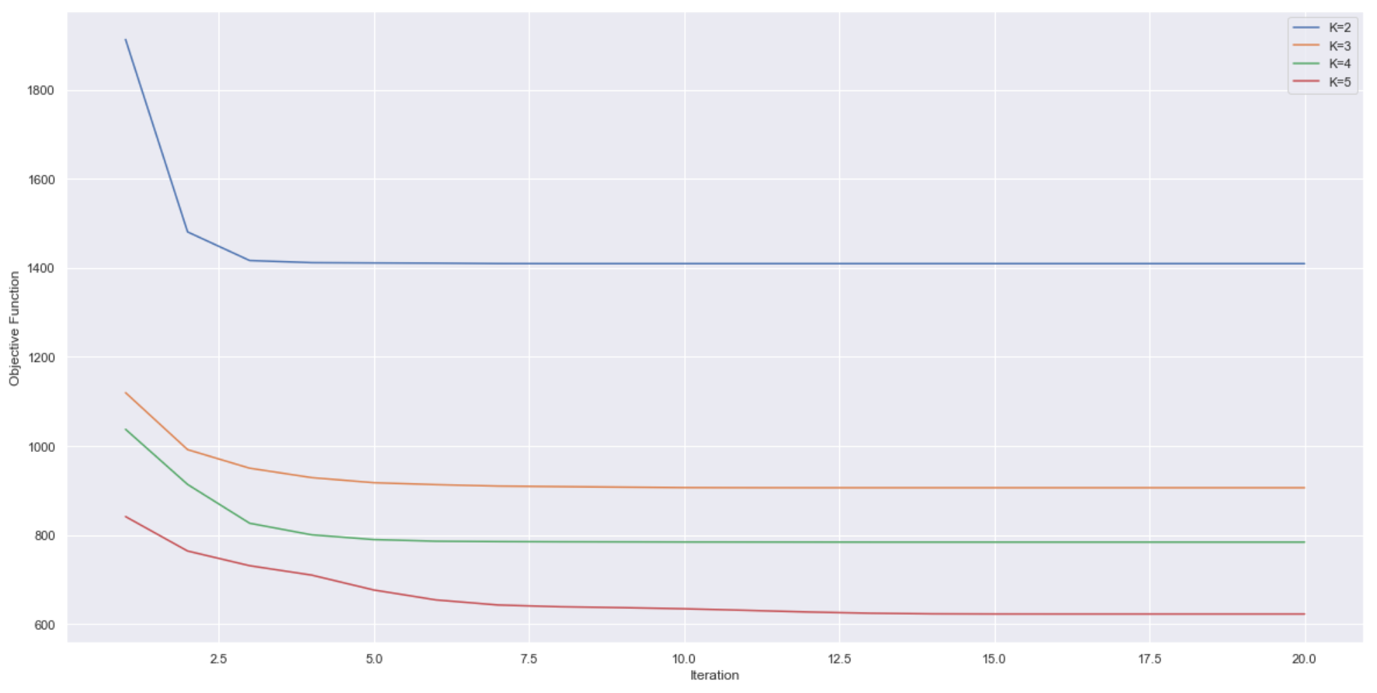
Homework 3

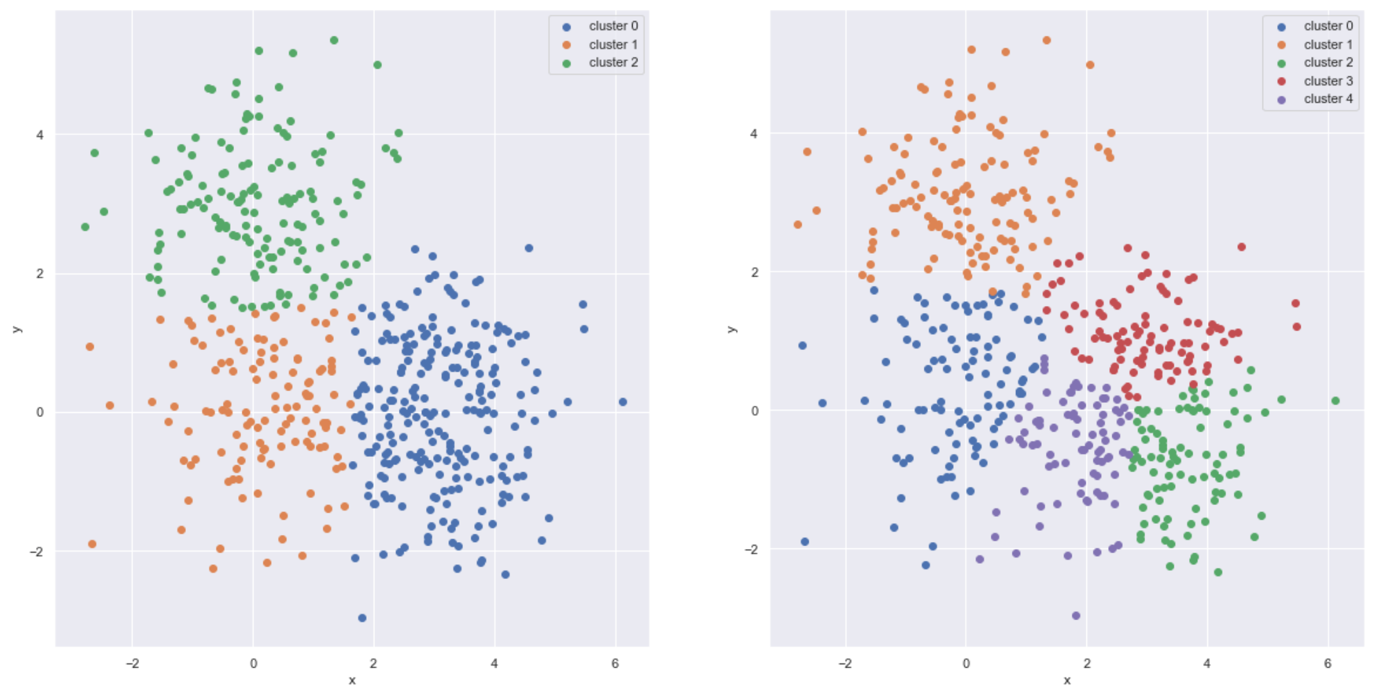
Zichen Pan(zp2197)

**Problem 1**

**(a)**

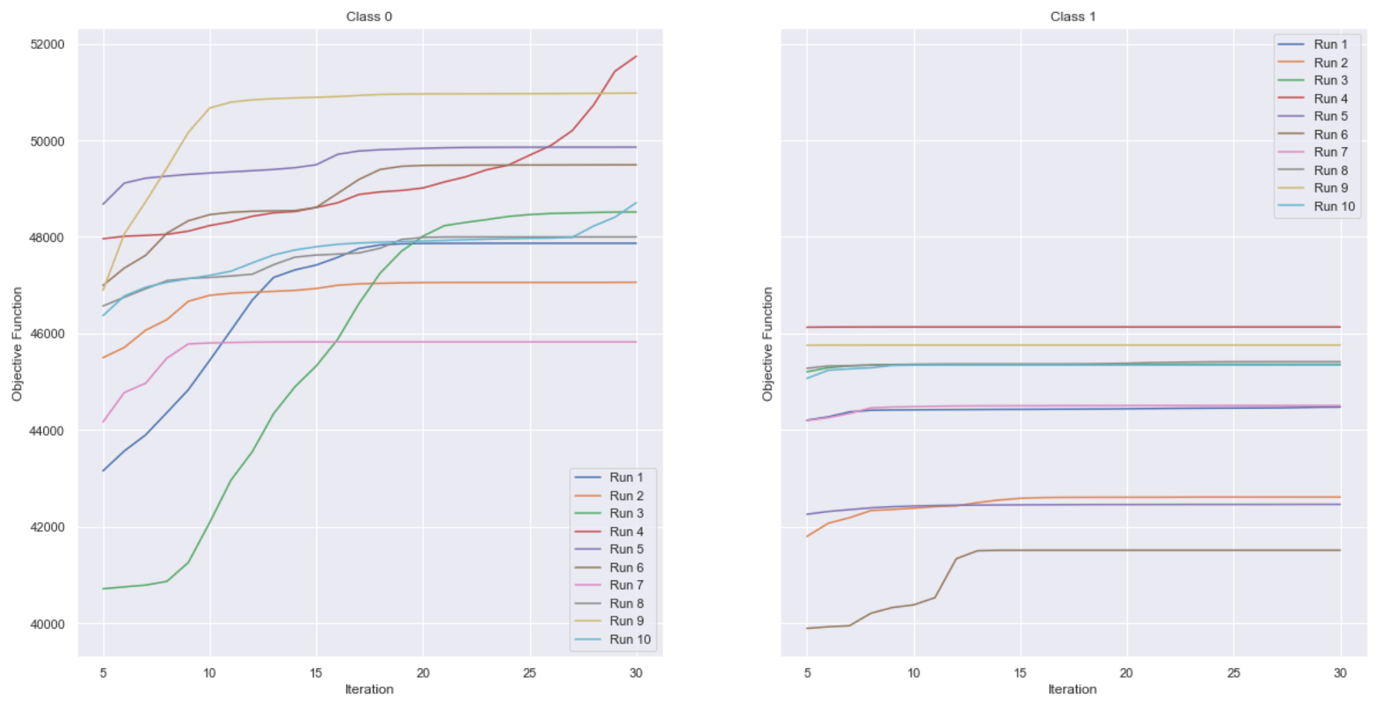


**(b)**



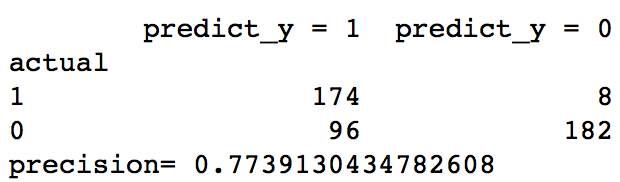
**Problem 2**

**(a)**

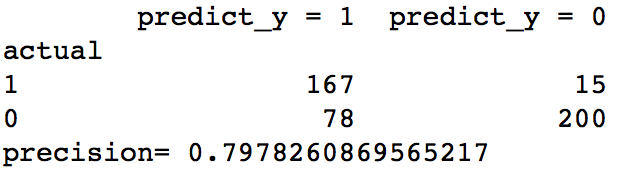


**(b)**

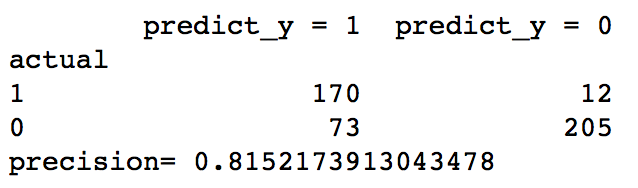
**1-Gaussian GMM:**



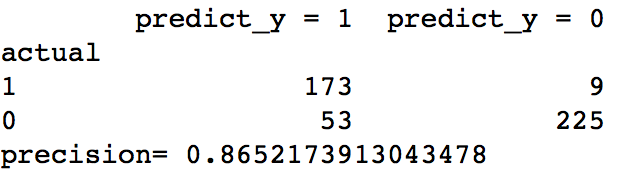
**2-Gaussian GMM:**



**3-Gaussian GMM:**

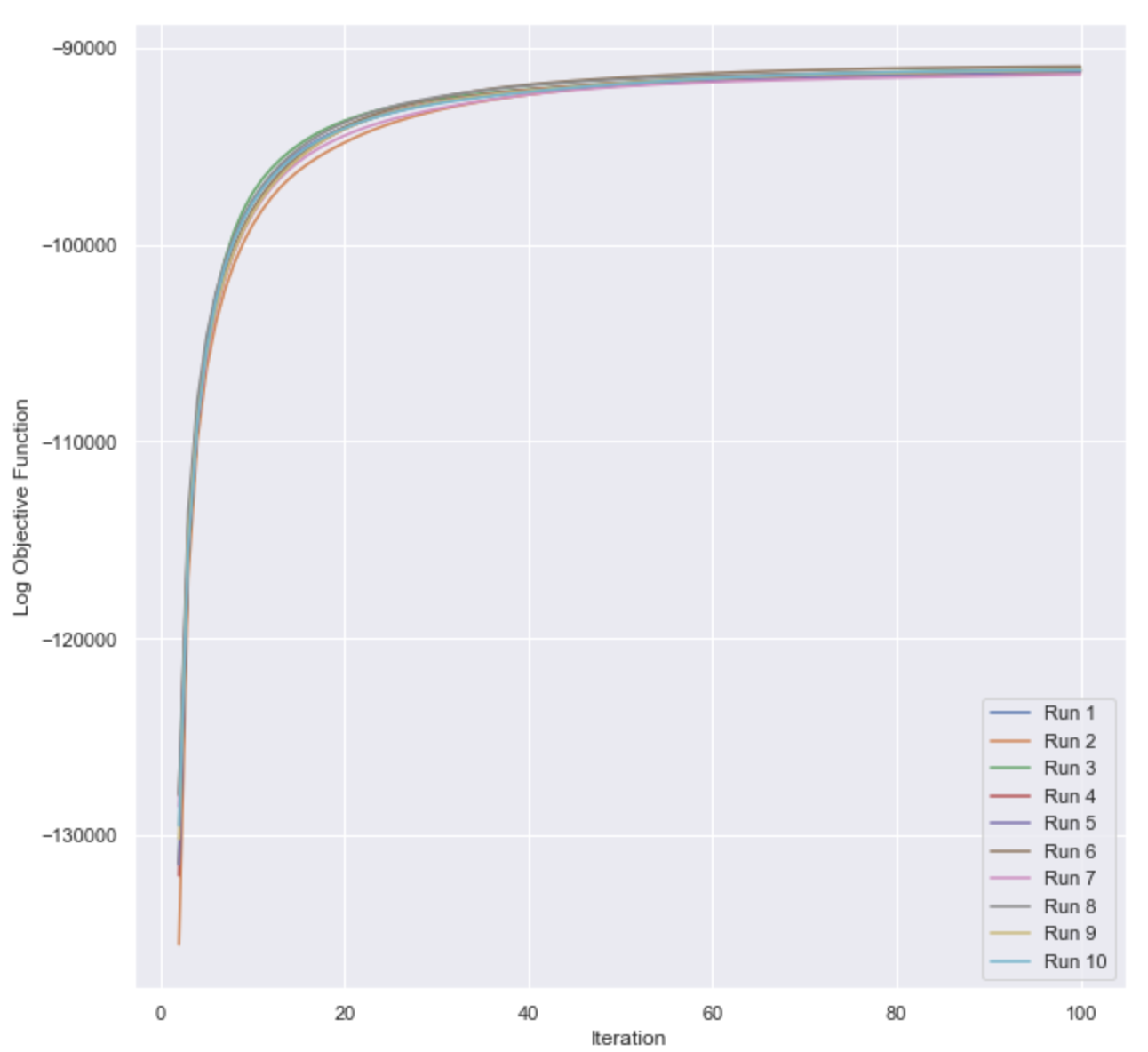
****

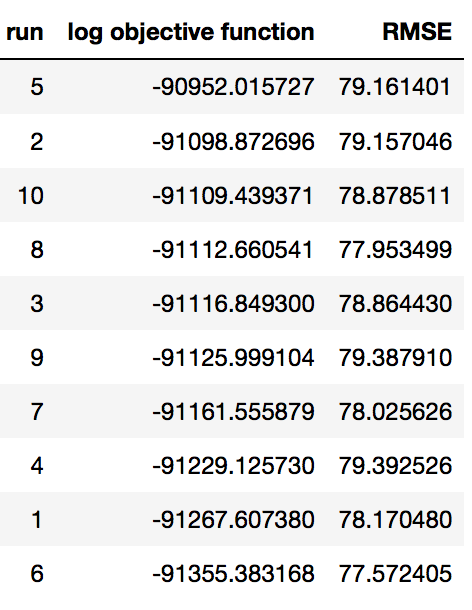
**4-Gaussian GMM:**

****

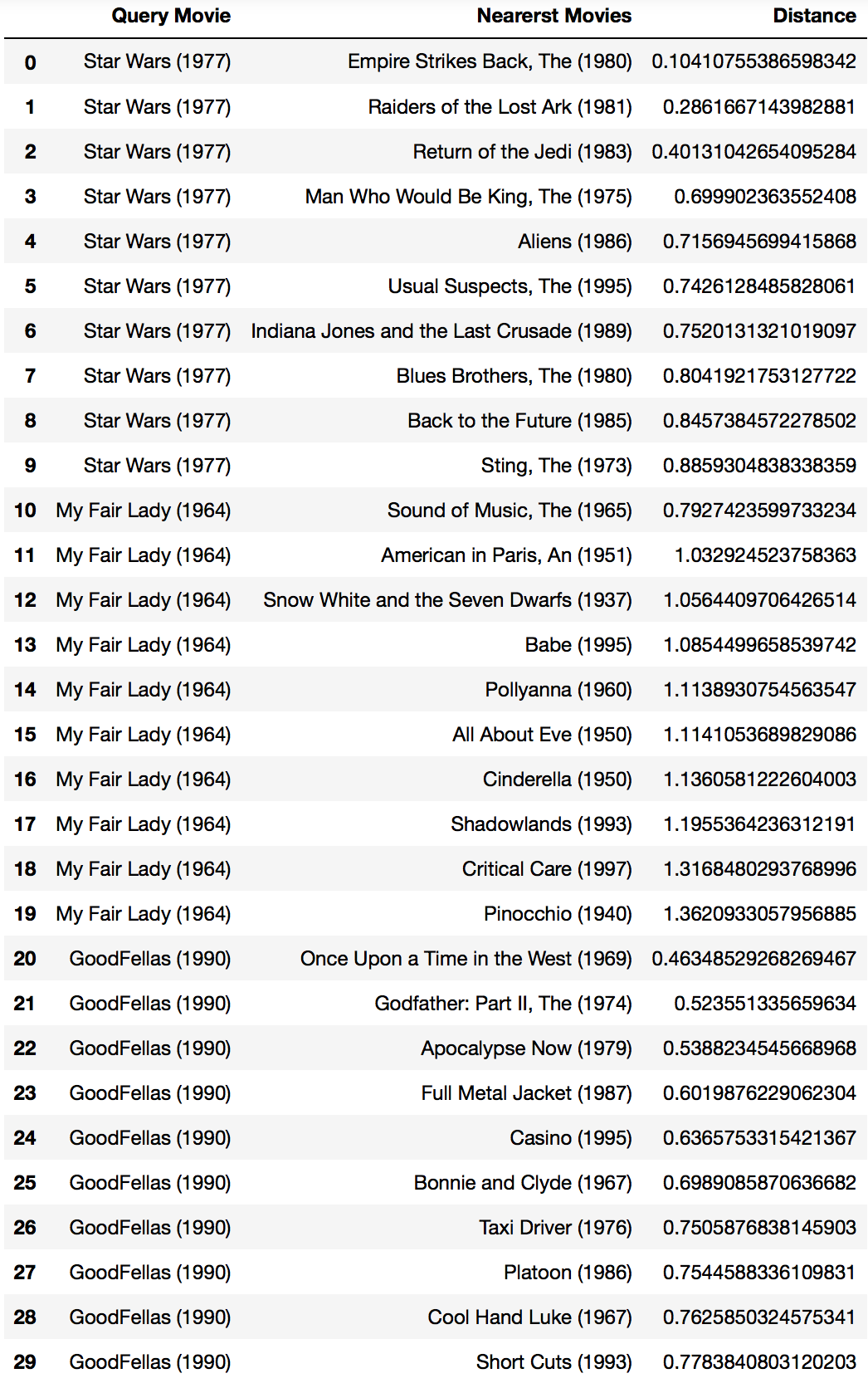
**Problem 3**

**(a)**

****

****

**(b)**

****