*import* pandas *as* pd

*import* matplotlib.pyplot *as* plt

*import* numpy *as* np

plt.rcParams['font.family'] ='Malgun Gothic'

plt.rcParams['axes.unicode\_minus'] =False

class StudentScoreAnalysis:

def \_\_init\_\_(self):

self.students = [f'학생{i}' *for* i *in* range(1,21)]

self.math = np.random.randint(50,100,len(self.students))

self.english = np.random.randint(50,100,len(self.students))

self.science = np.random.randint(50,100,len(self.students))

self.data = {

"Student" : self.students,

"Math" : self.math,

"English" : self.english,

"Science" : self.science

}

self.df = pd.DataFrame(self.data)

self.df['Total'] = self.df['Math']+self.df["English"]+self.df["Science"]

def *mean*(self):

math\_mean = self.df['Math'].mean()

english\_mean = self.df['English'].mean()

science\_mean = self.df['Science'].mean()

plt.bar(['수학', '영어', '과학'], [math\_mean, english\_mean, science\_mean], color = 'orange')

plt.title('과목별 평균 성적')

plt.ylabel('평균 점수')

plt.show()

def *top\_5*(self):

top\_idx = self.df['Total'].sort\_values(ascending=False).head().index

top\_students = [self.df.iloc[i,0] *for* i *in* top\_idx]

top\_mean = [self.df.iloc[i,4]/3 *for* i *in* top\_idx]

plt.bar(top\_students, top\_mean, color = 'green')

plt.title('상위 5명의 평균 성적')

plt.ylabel('평균 점수')

plt.show()

score = StudentScoreAnalysis()

score.mean()

score.top\_5()



