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Extra feature adds at line 337 and line 379 with the function "reo_eas ()" in assignment2_feature1.py

```python
326        # retrive the data from student_df(dataframe) to student_list(list of student objects)
327        # pay attention: all numbers in the dataframe are 1-based, you need to change them back to 0-based
328        # TODO: Task 9 - retrive the preference list, from string to list of ints
329        # For example: (dataframe) "[1, 2, 3]" -> (list of int) [0, 1, 2]
330        for ind, row in student_df.iterrows():
331            tmp_student = Student(row["student_id"] - 1)
332            for d in np.arange(D):
333                s = row["arrival_time_day_" + str(d + 1)].split(":")
334                tmp_student.set_arrival_time((int(s[0]) - 11) * 60 + int(s[1]))
335                s_2 = row["preference_day_" + str(d + 1)]
336                s_2 = list(np.array(ast.literal_eval(s_2)) - 1)
337                #s_2 = reo_eas(s_2)
338                tmp_student.set_preference(s_2)
339            student_list.append(tmp_student)
340    |
341
342    else:
```

```python
367        # TODO: Task 10 - generate the preference lists
368        np.random.seed(1)
369        random.seed(1)
370        for tmp_student in student_list:
371            i = 0
372            while i < D:
373                preference = []
374                ran_p = min(np.random.uniform(5) + 1, n)
375                while len(preference) < ran_p:
376                    dis_int = random.randint(0, n-1)
377                    if dis_int not in preference:
378                        preference.append(dis_int)
379                #preference = reo_eas(preference)
380                tmp_student.set_preference(preference)
381                i = i + 1
382
383        # generate n numbers as the promotion time of the booths
384        # TODO: Task 11 - generate the promotion time
```

else > for tmp_student in student_list > while i < D

Terminal: Local ×   +

With the provided conf file: config_reproduce_random.csv and student_default_random.csv

Study the case with student 11:

| 11 | 11:09 | 12:21 [6, 20] | [17, 8] |

With preference: d1[6, 20],   d2[17, 8]

Basic case:

Day	Time	Event	len(Queue)

Day	Time	Event		len(Queue)
1	11:09 Student 11 arrives Art Fair		NA	
1	11:12 Student 11 arrives at booth 6			1
1	11:15 Student 11 departs at booth 6			0
1	11:22 Student 11 arrives at booth 20			1
1	11:23 Student 11 departs at booth 20			0
1	11:24 Student 11 departs Art Fair		NA	
2	12:21 Student 11 arrives Art Fair		NA	
2	12:30 Student 11 arrives at booth 17			1
2	12:44 Student 11 departs at booth 17			1
2	12:49 Student 11 arrives at booth 8			1
2	12:54 Student 11 departs at booth 8			0
2	12:58 Student 11 departs Art Fair		NA	

After adding features 1:

Day	Time	Event		len(Queue)
1	11:09 Student 11 arrives Art Fair		NA	
1	11:12 Student 11 arrives at booth 6			1
1	11:15 Student 11 departs at booth 6			0
1	11:22 Student 11 arrives at booth 20			1
1	11:23 Student 11 departs at booth 20			0
1	11:24 Student 11 departs Art Fair		NA	
2	12:21 Student 11 arrives Art Fair		NA	
2	12:25 Student 11 arrives at booth 8			1
2	12:30 Student 11 departs at booth 8			0
2	12:35 Student 11 arrives at booth 17			2
2	13:03 Student 11 departs at booth 17			1
2	13:05 Student 11 departs Art Fair		NA	

Day 1 the preference remains the same. But in day2, the departure time of art fair is later than base case after reordering the preference, from [17,8] to [8,17].

Base case: the summary:

Day	TotalWaitingTime	TotalTravelingTime	TotalTourTime
1	264	1774	3445
2	127	1728	3165

Test case:

Day	TotalWaitingTime	TotalTravelingTime	TotalTourTime
1	224	1077	2711
2	247	1083	2640

From above, reordering the preference according to distance will reduce the travel time but not necessarily reduce the waiting time.