**Báo cáo bài tập thực hành**

**Tên SV: Đặng Quang Sơn**

**Mã SV: 231230885**

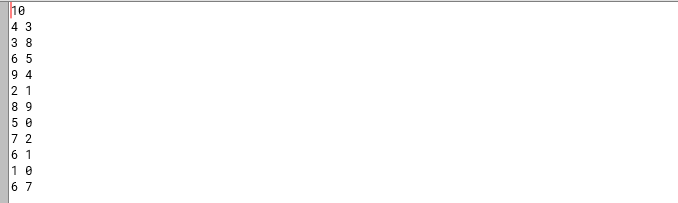
Các bài tập đã làm:

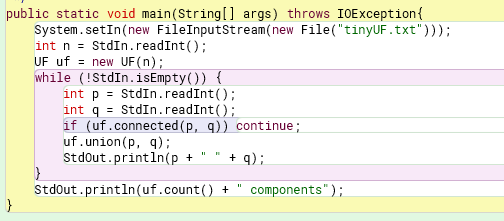
1. Cài môi trường và chạy Binarysearch
2. U-F
3. Stack
4. Queue, đọc và chạy quick 3 way
5. Bổ sung lớp chia nguyên
6. Khôi phục inversion và áp dụng cho ds sinh viên
7. Khôi phục Closet pair
8. Cài đặt meger
9. Cài MinPQ
10. Cài IndexMinPQ
11. Cài VnDate
12. Cài Student
13. Cài TopSV
14. Cài Interval Scheduling
15. Cài Interval Partitionining
16. Cài MinLateness
17. Khôi phục DijsktraSP
18. Cài DijsktraSD
19. Cài DijktraAllpair
20. Cài PrimMST
21. Cài KruskalMST
22. Khôi phục BST
23. Đọc file sv.csv
24. In dssv
25. Cài API tính TBC trong lớp sinh viên
26. Cài đặt bài toán movies
27. Nhập điểm môn
28. Cài API tính TBC học kỳ
29. Cài lớp Tổng kết học kỳ
30. Cài lớp Thí Sinh
31. Đọc file ds Thí Sinh
32. Cài FrequencyIndex
33. Khôi phục AllQuen
34. Đóng gói Knapsack
35. Cài EdgeWeightedDigraph \_T
36. Cài EdgeWeightedDirectedCycle\_T
37. Cài BellmanfordSD
38. Cài vertex(interface), node, supernode, DirectedEdge\_vertex
39. Cài EdgeweightedDigraph\_vertex
40. Cài EdgeweightedDirectedCycle\_vertex
41. Cài lớp FileCount(comparable)
42. Query mảng từ khoá

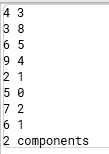
1.MT\_BS

2.UF(khôi phục)

-Bổ sung trong phương thức union()

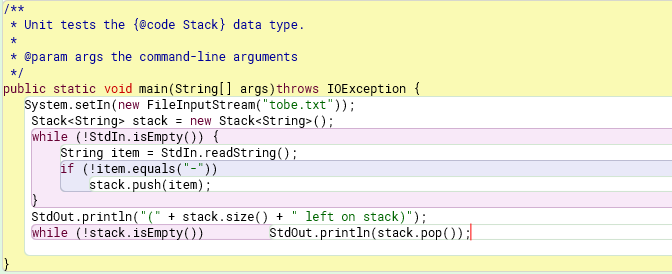


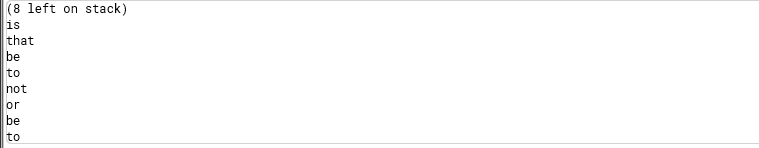




3.Stack

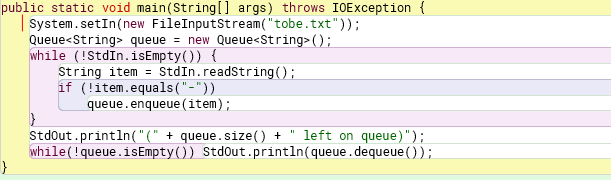
-Bổ sung trong phương thức push()





4.Queue

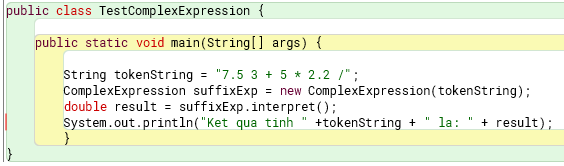
-Bổ sung trong phương thức enqueue(), dequeue()





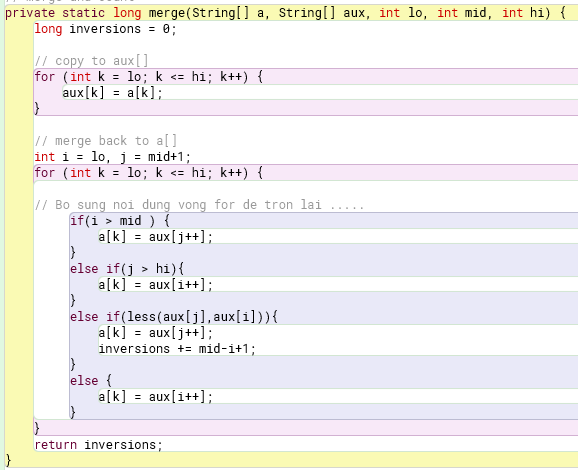
5.Division

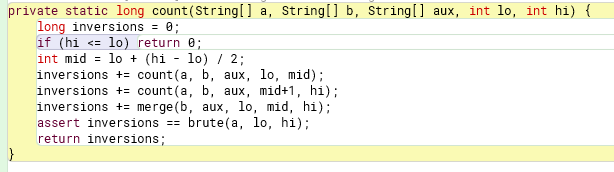
-Bổ sung lớp chia thực

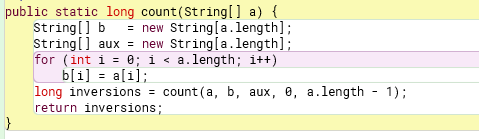


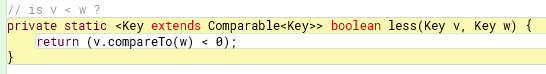


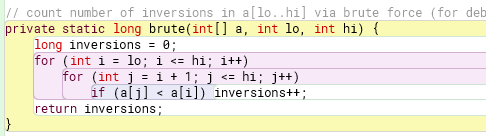
6.Inversion: String( Tạo)

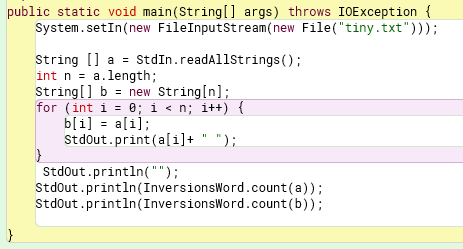






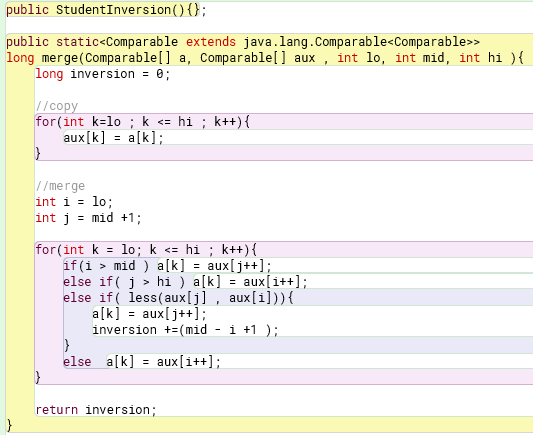


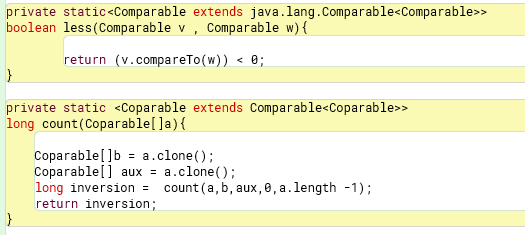


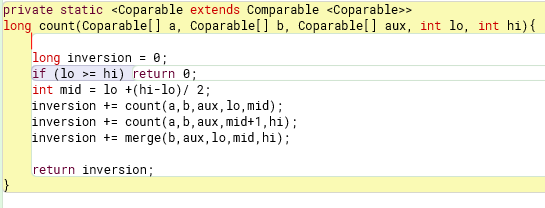


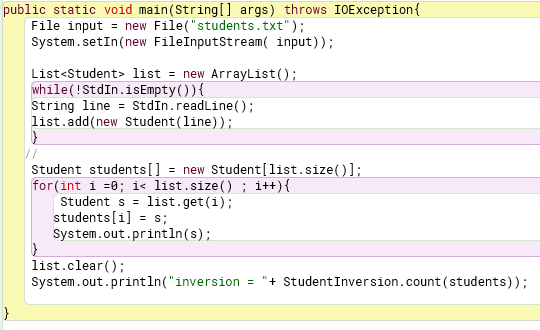


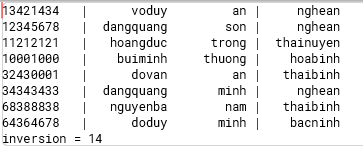
-Áp dụng cho danh sách sinh viên



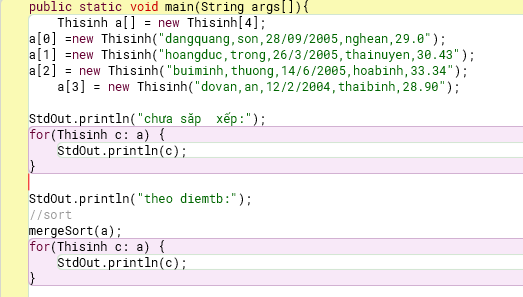


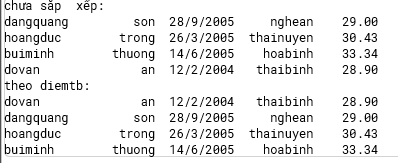






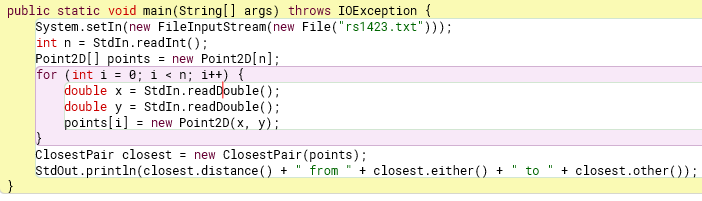
7.Merge





8.Closet pair( Khôi phục )

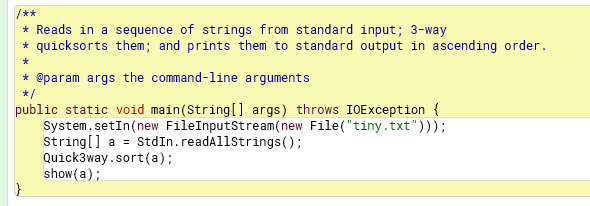
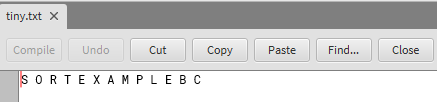
-Khôi phục trong phương thức merge()

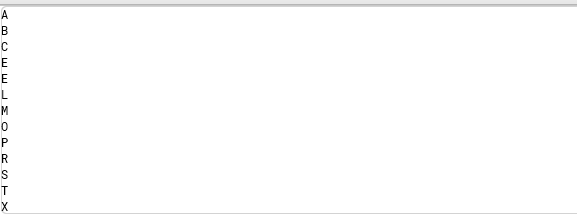




9.Quick 3 way

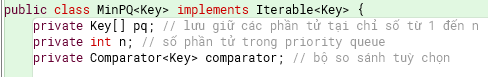
-Chạy hàm main()

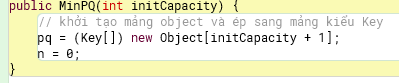




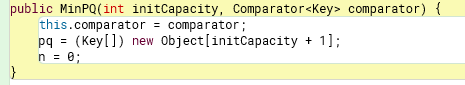
10.MinPQ(tạo)

-Tạo dựa trên MaxPQ

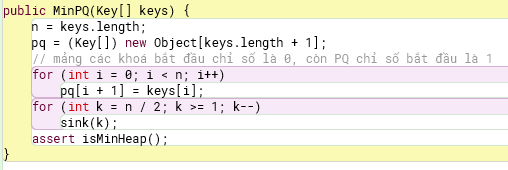




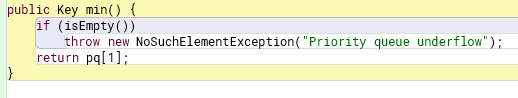


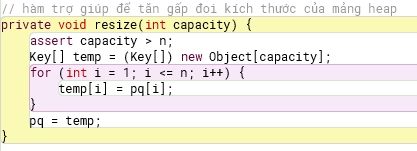


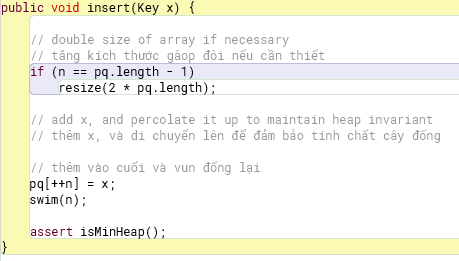


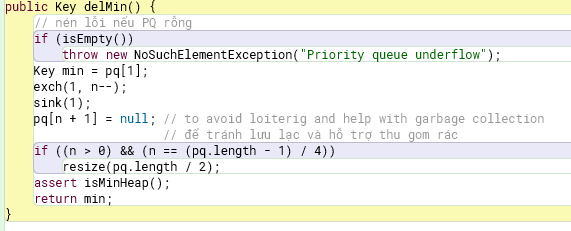


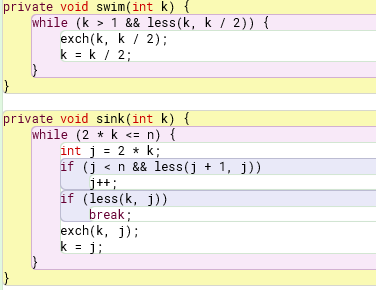


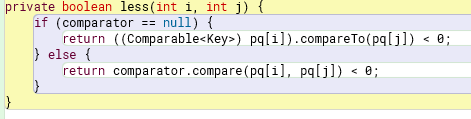


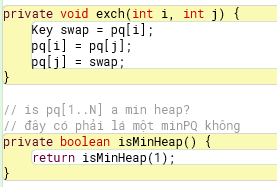


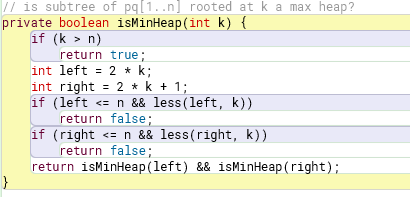


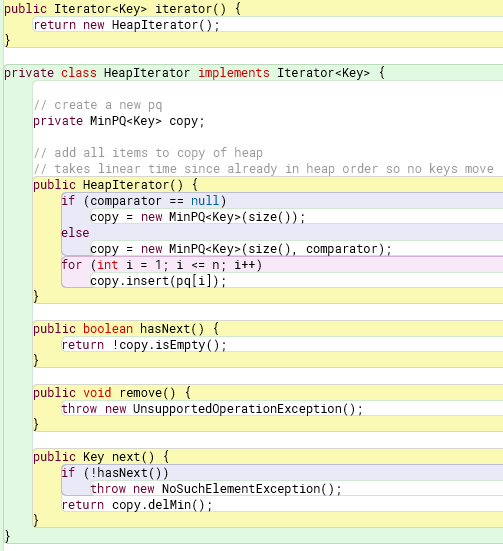


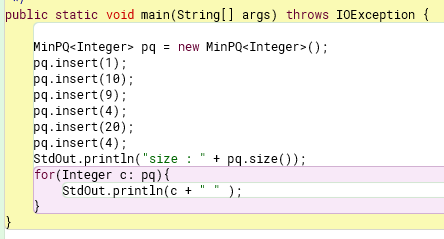








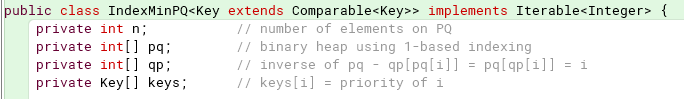


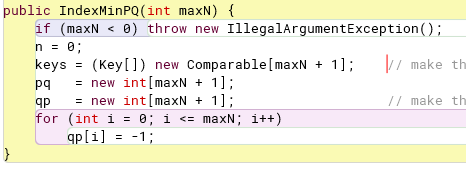




11.Index MinPQ( tạo)

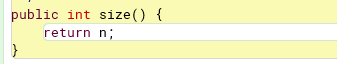
-Tạo dựa trên IndexMaxPQ

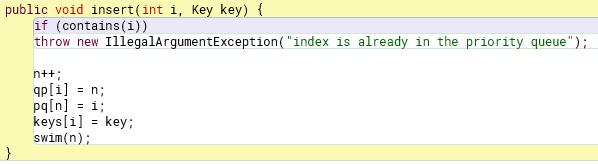


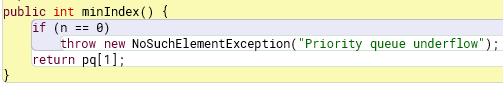


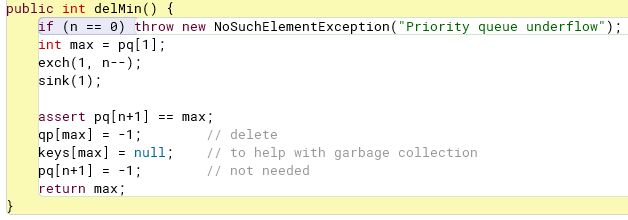


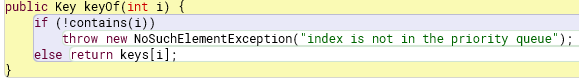


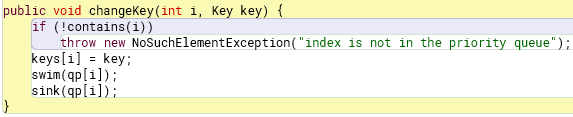


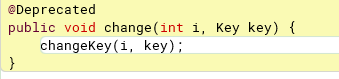


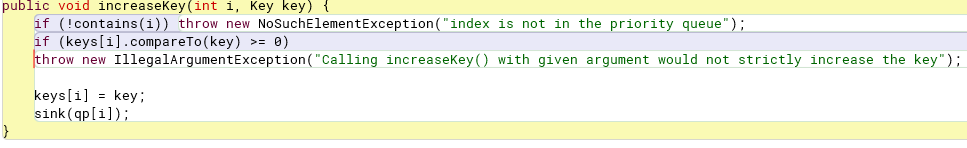


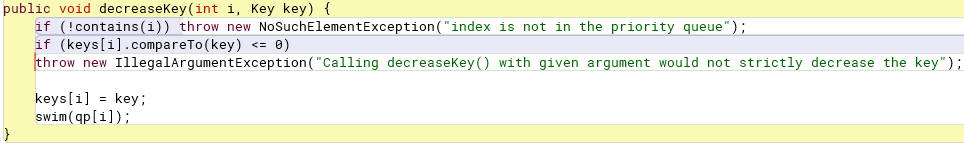


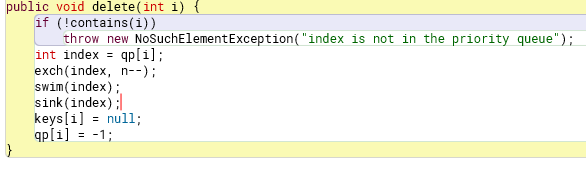


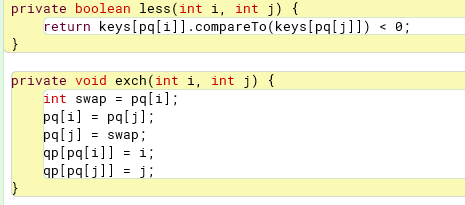


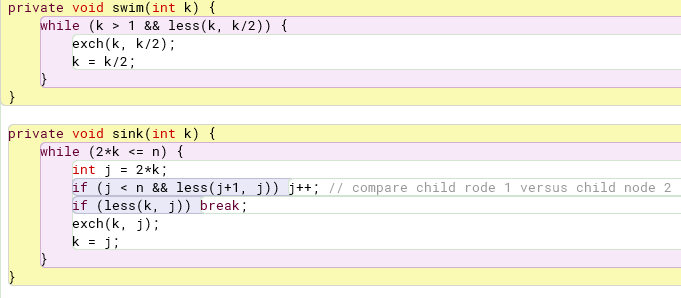


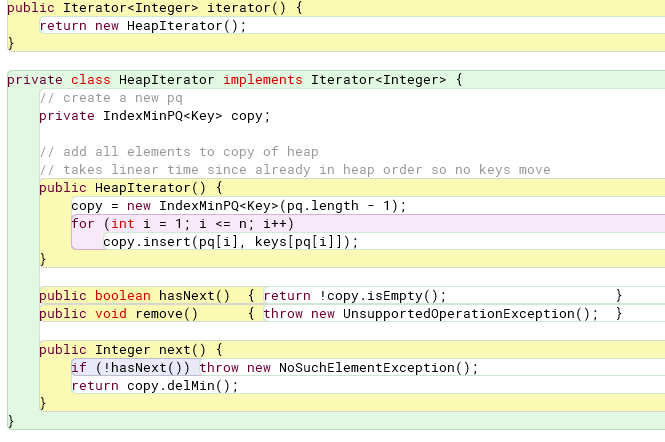


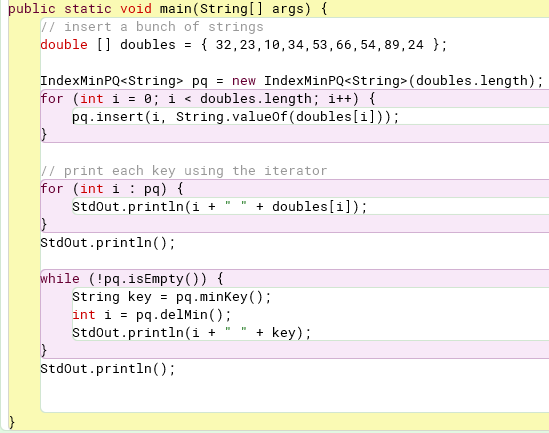


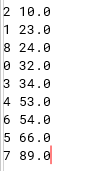
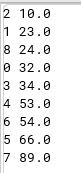




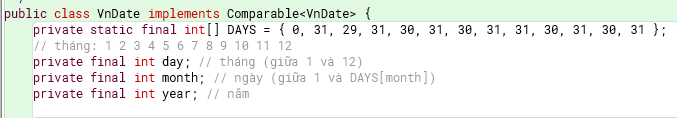


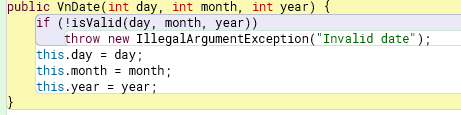


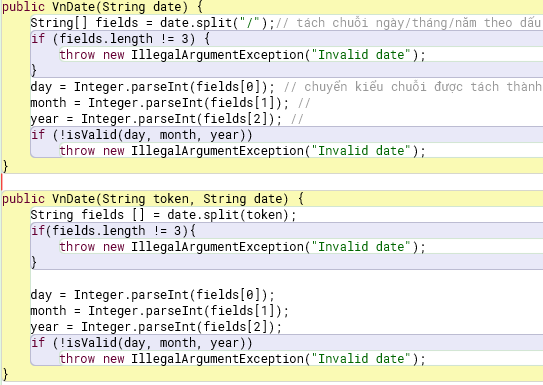


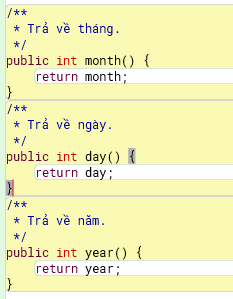


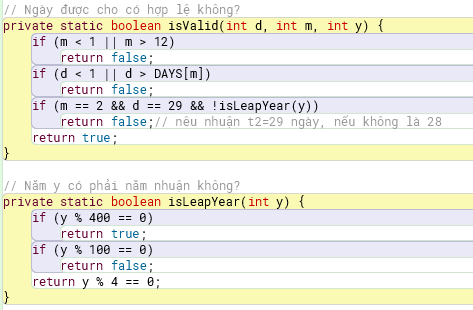
12.VNDate(tạo)

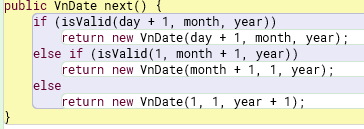


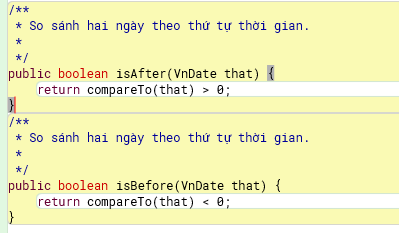


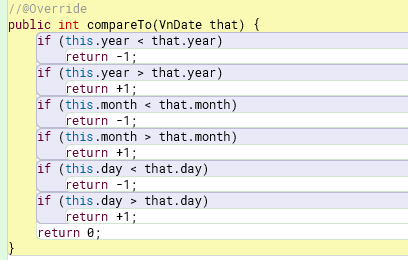


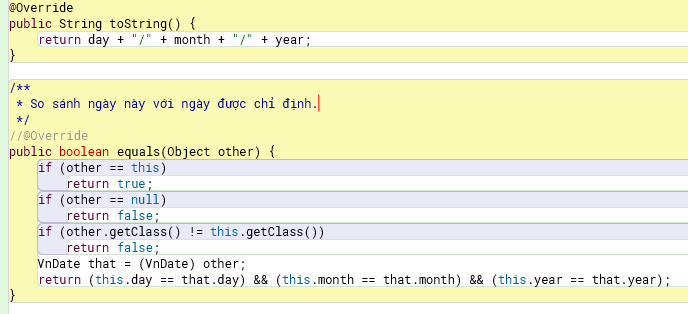


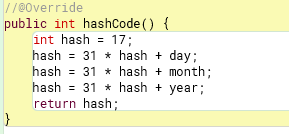


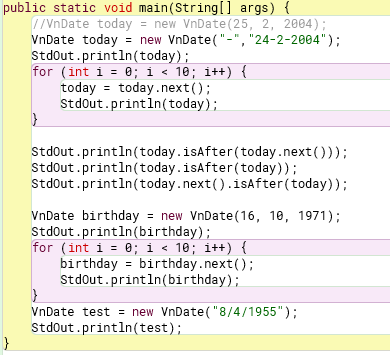


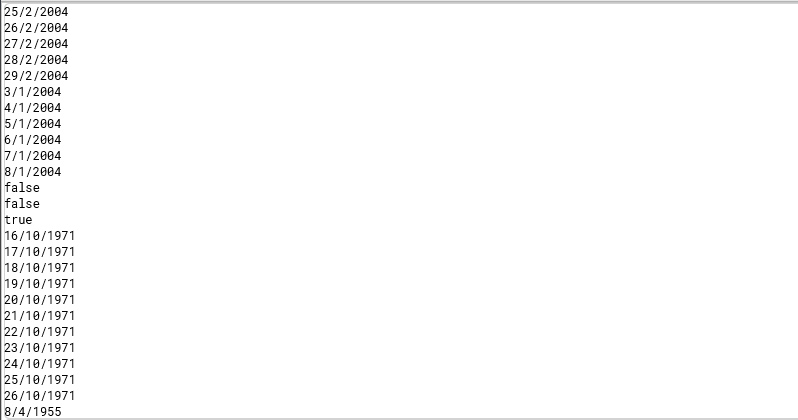






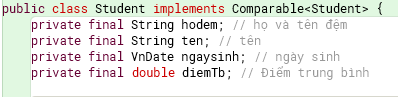


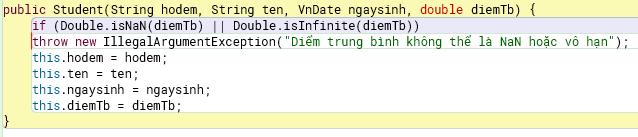


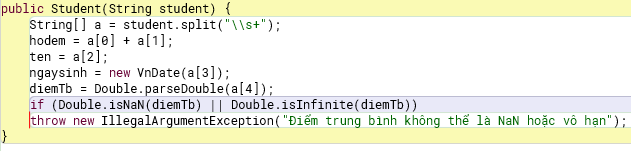


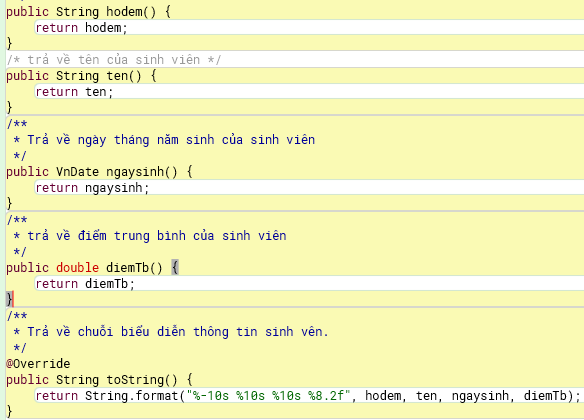
13.Student ( tạo)

-Cài đặt lớp Student Comparable

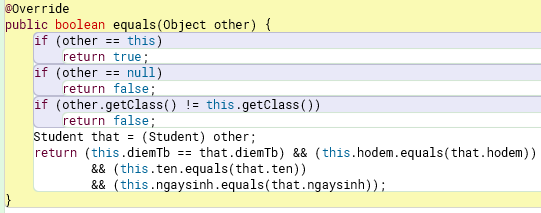


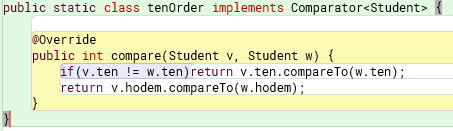


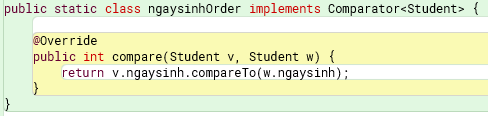


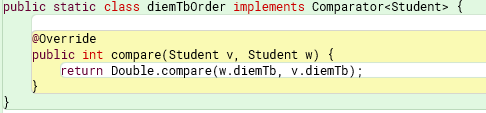


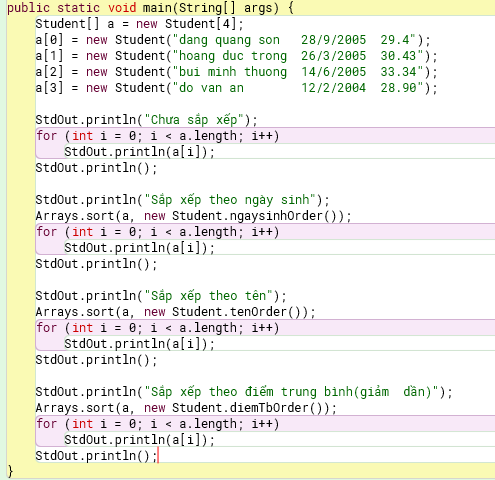


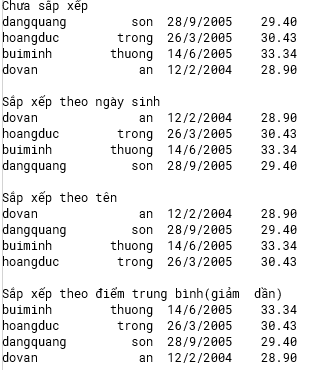






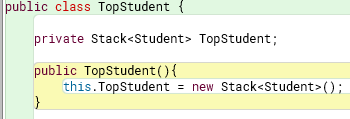


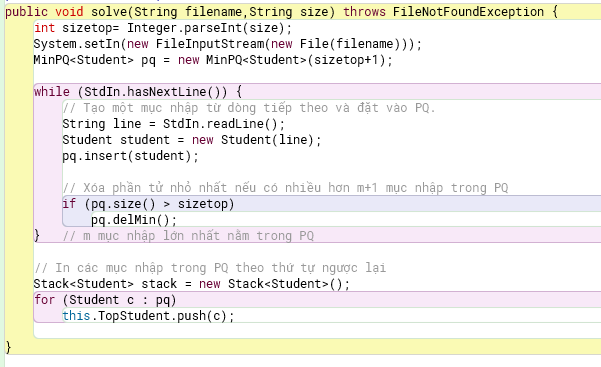


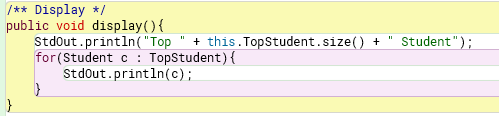


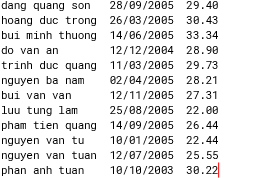
14.TopMSV( tạo)

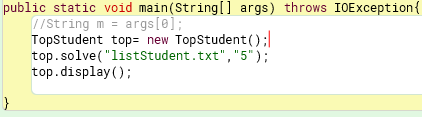
-Đưa ra danh sách m sinh viên có điểm cao nhất

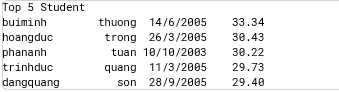






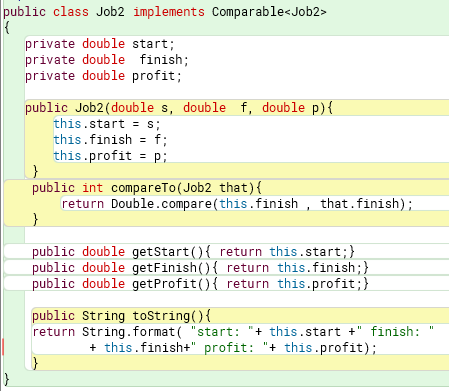






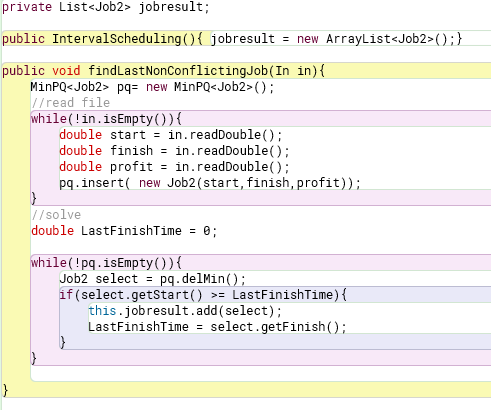
15.Interval Scheduling( tạo)

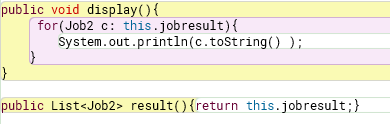
-Chọn nhiều công việc nhất không xung đột

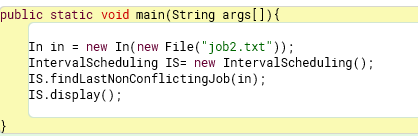


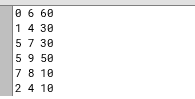
-Lớp IntervalScheduling :







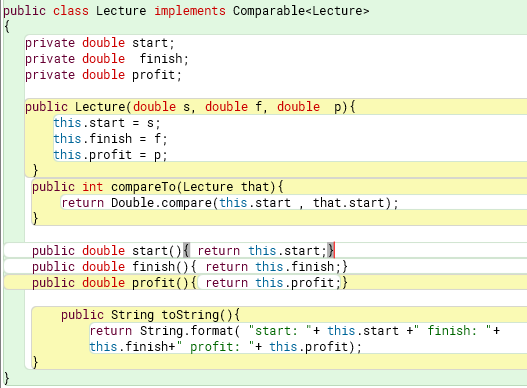






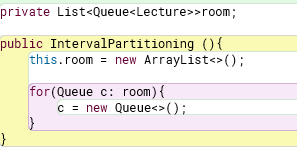
16.Interval Partitioning( tạo )

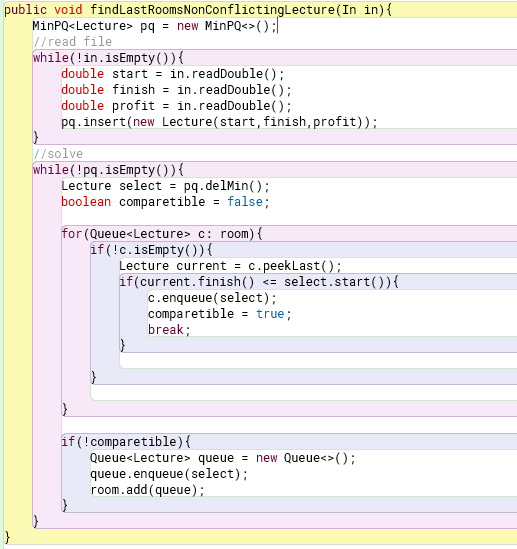
-Sắp xếp sao cho tối thiểu phòng học nhất và không xung đột

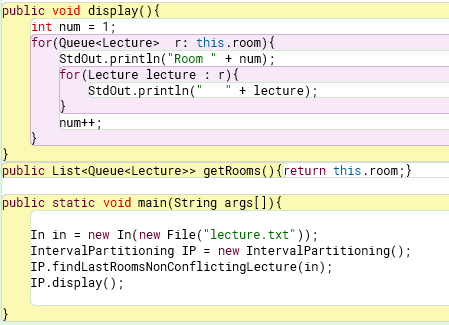


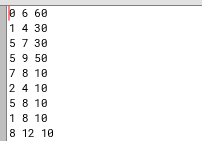
-Lớp IntervalPartitioning

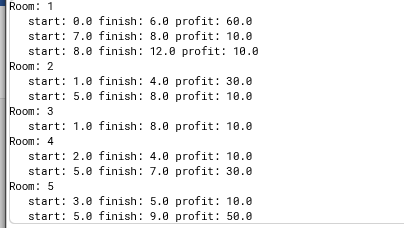






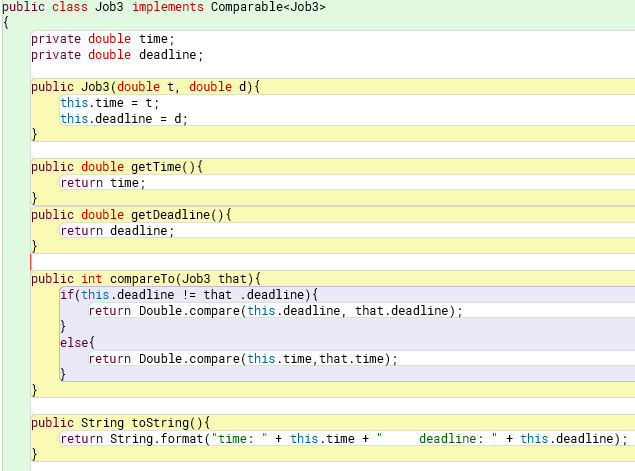






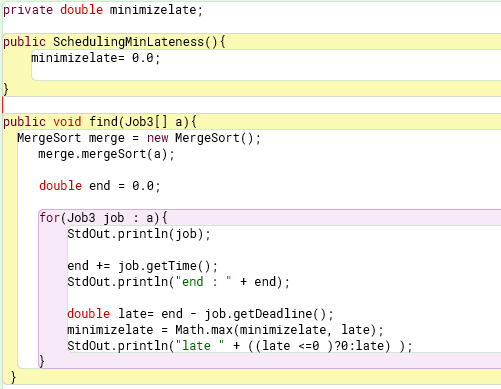
17.Min Lateness(tạo )

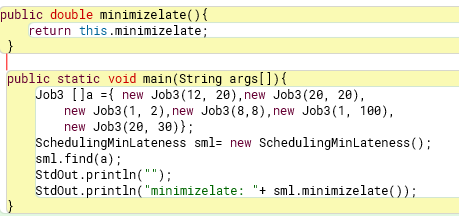
- Tìm độ trễ tối đa giữa hai công việc nhỏ nhất

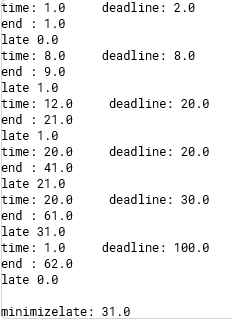


-Lớp SchedulingMinlateness

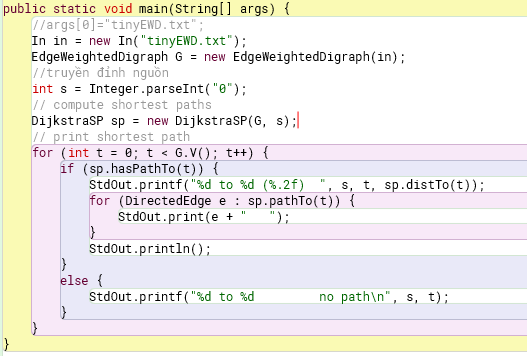


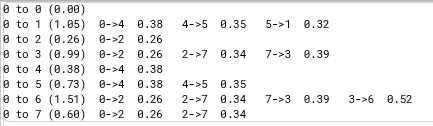






18.Dijktra SP( khôi phục)

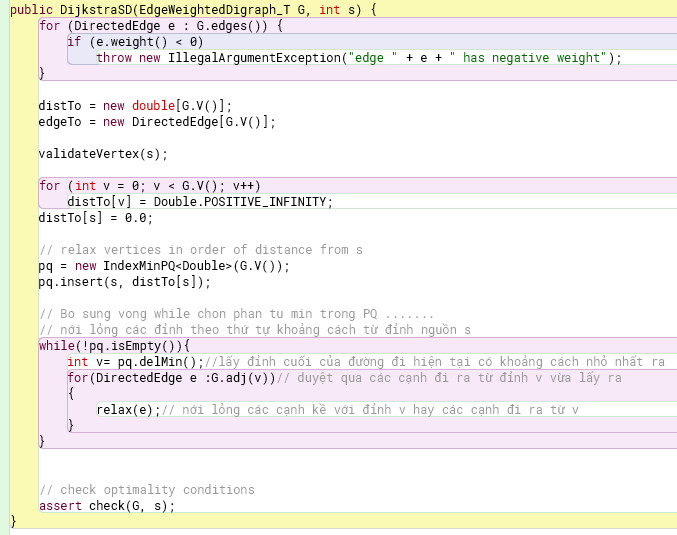


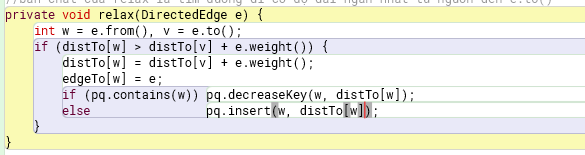


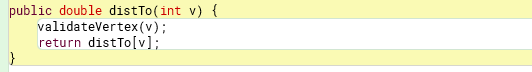
19.Dijktra SD( tạo)

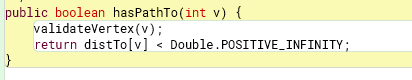
-Tìm đường đi ngắn nhất từ mọi đỉnh đến duy nhất một đích

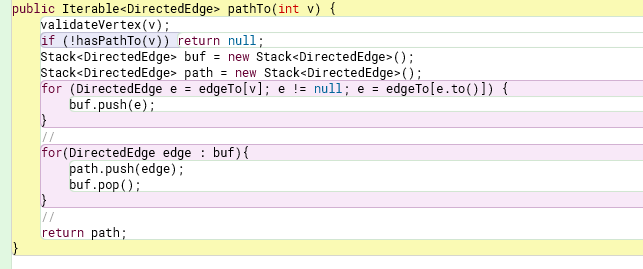




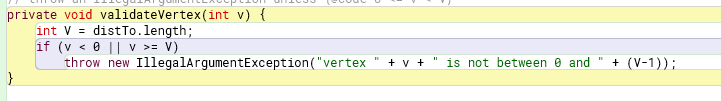


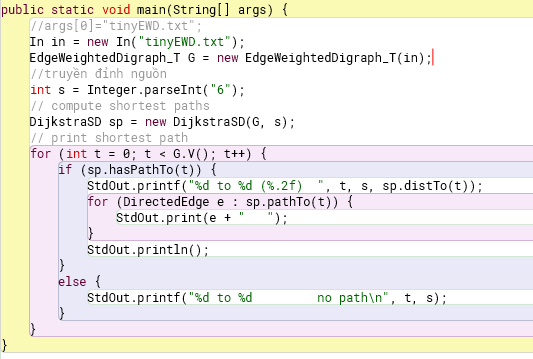


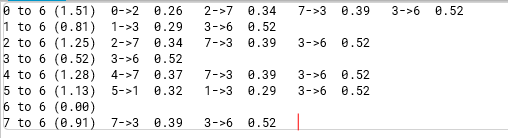




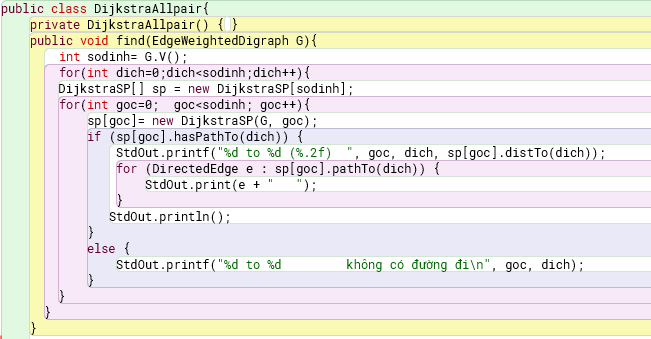


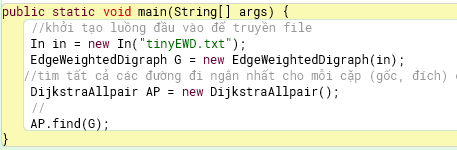


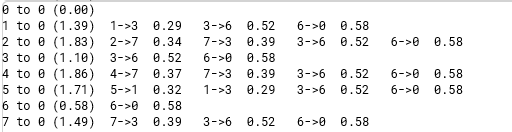


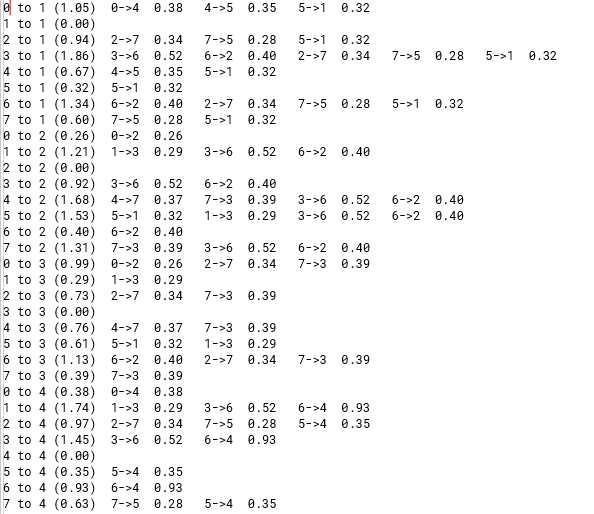


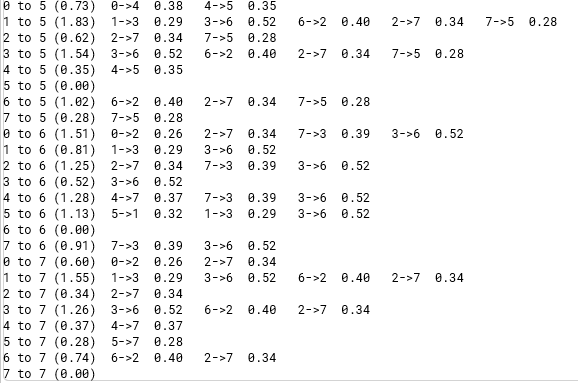
20.Dijktra All pair( tạo)

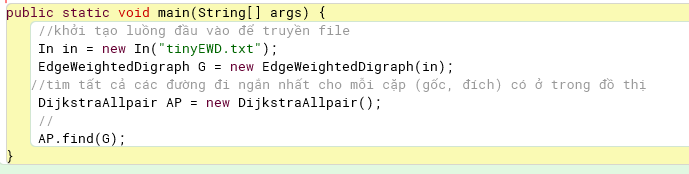






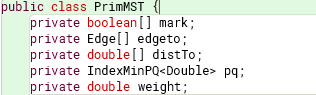


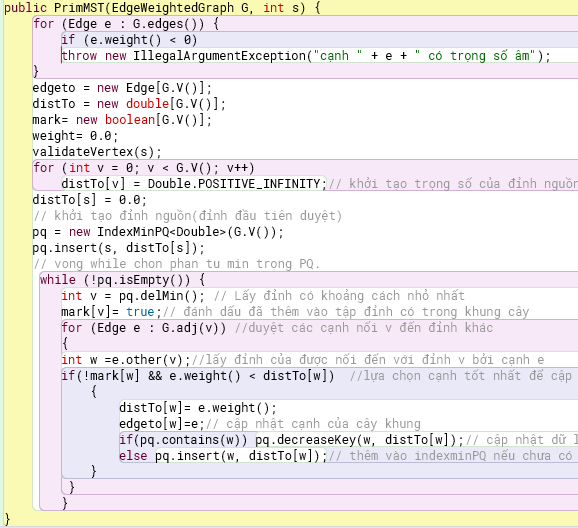


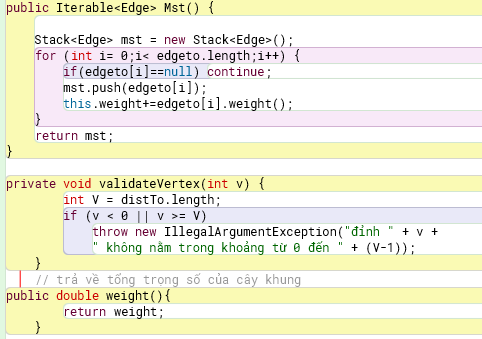


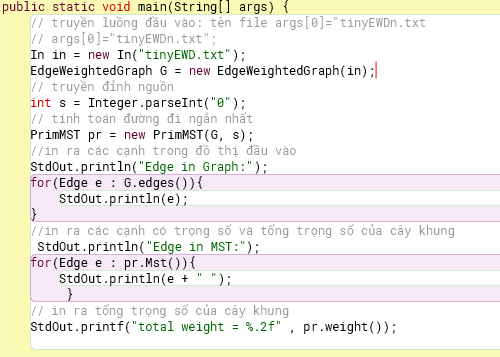
21.Prim( tạo )

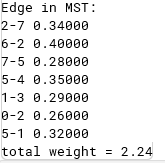
-Tìm cây khung có trọng số nhỏ nhất trên đồ thị vô hướng



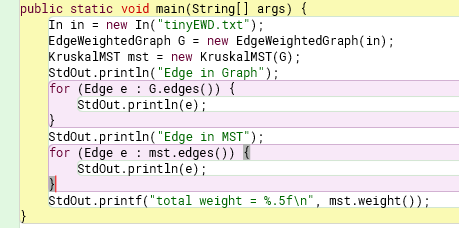


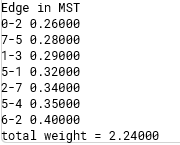






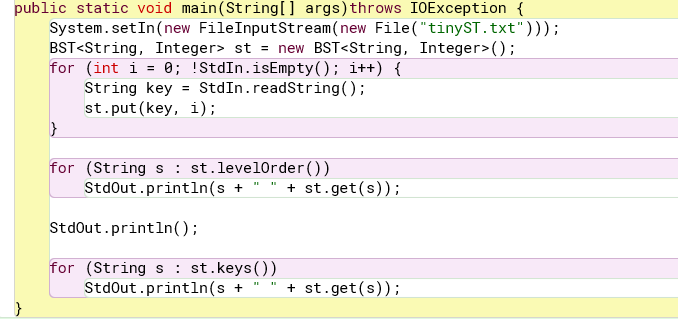
22.Kruskal( khôi phục)

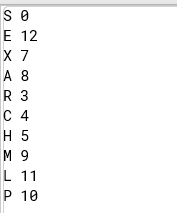




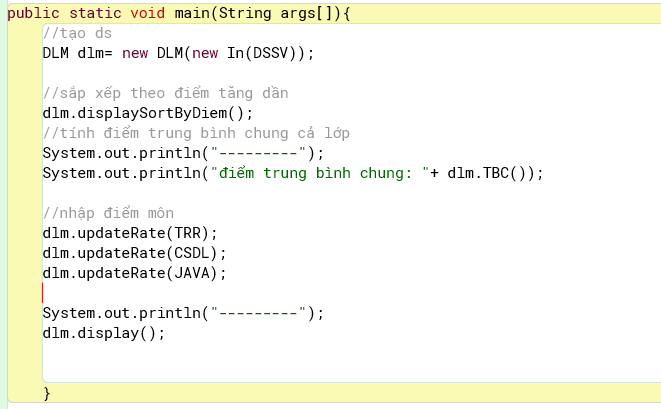
23.Khôi phục BST( get , put)



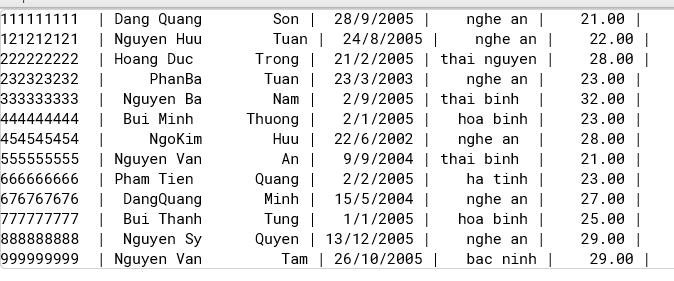


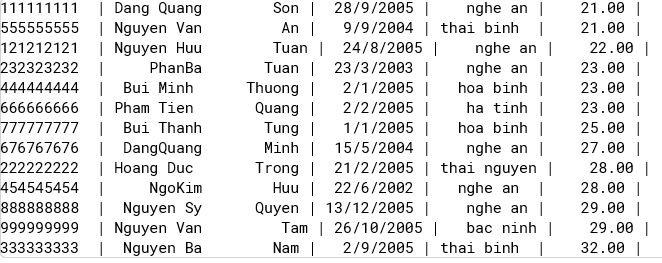


24.DSSV(tạo - Đọc file dssv)

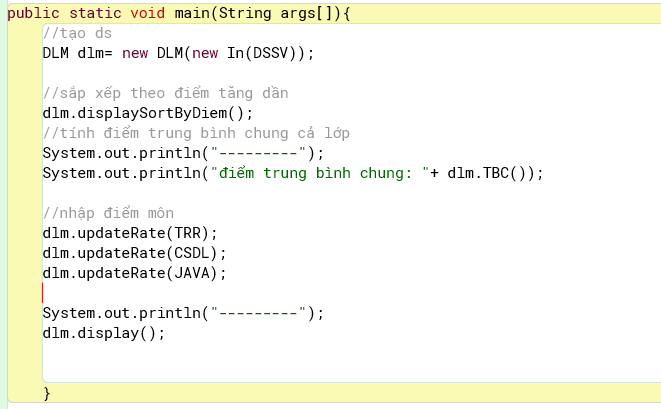


25.In DSSV ra theo Mã SV, dtb



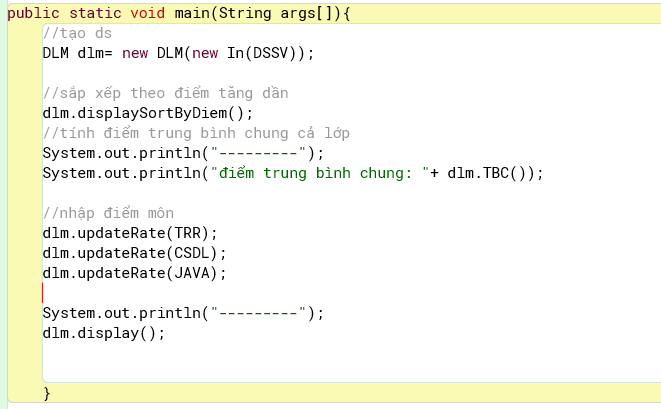


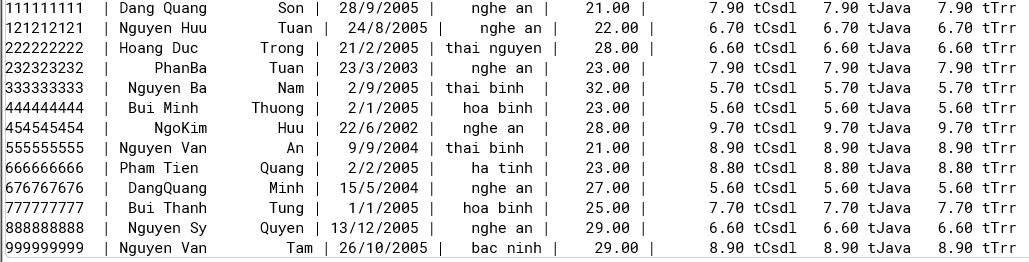
26.Tính TBC( tính trung bình chung)



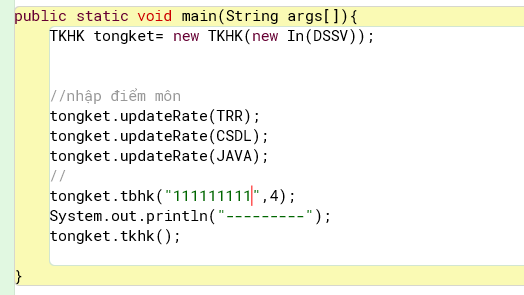


27.Nhập điểm môn



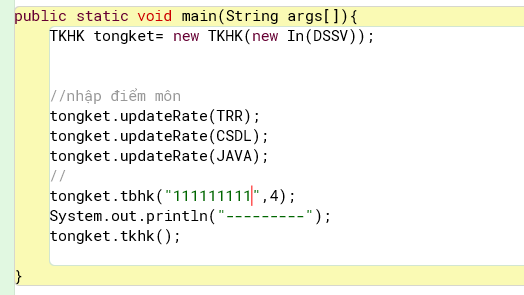


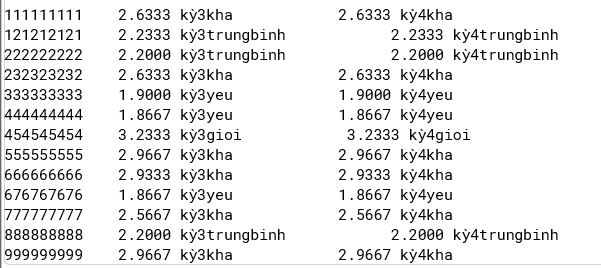
28.Tính trung bình điểm học kỳ Sinh Viên



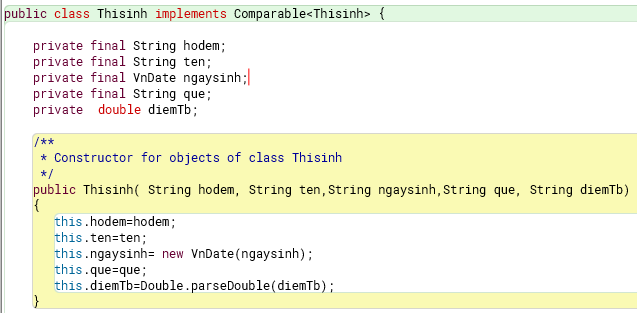


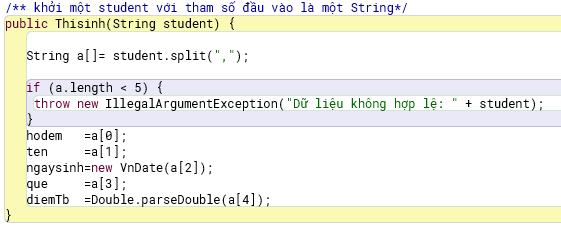
29.Tổng kết học kỳ lớp

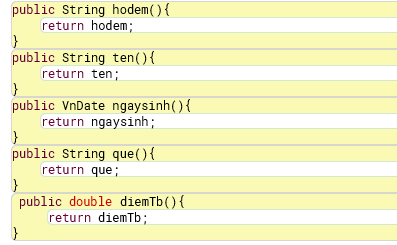




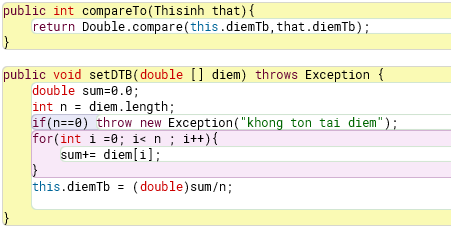
30.Thí sinh, DS thí sinh , bảng băm

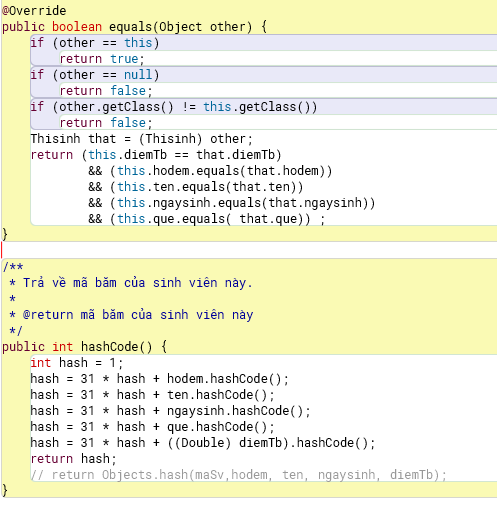


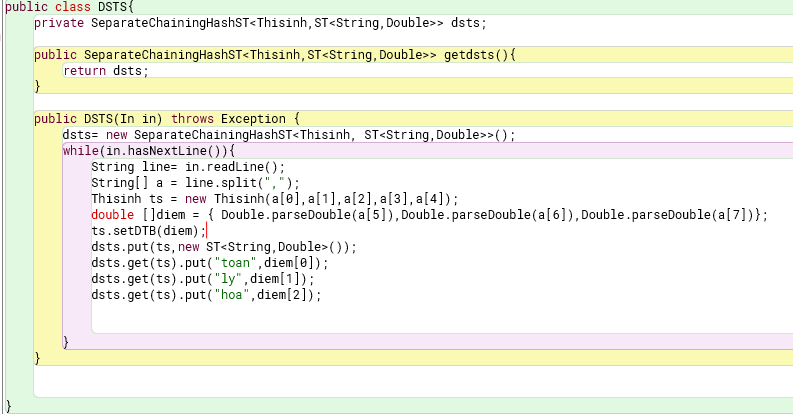




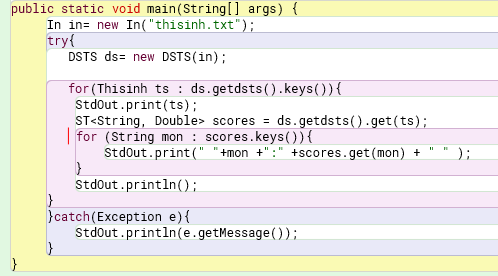


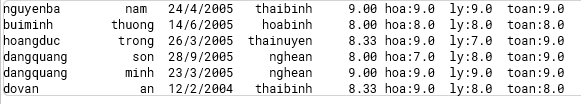




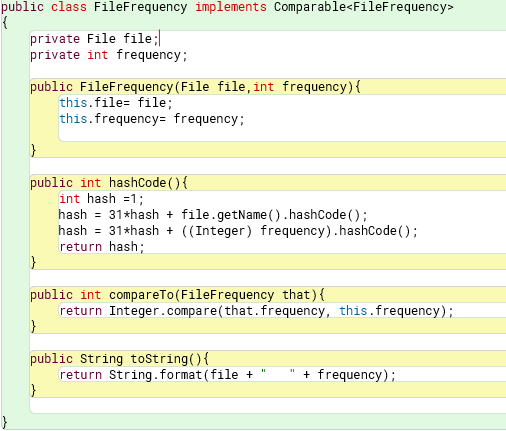


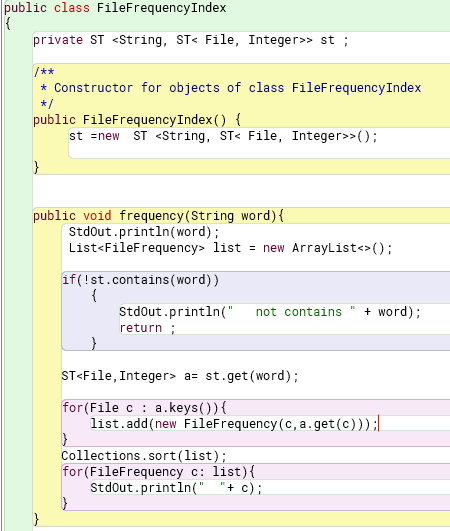
31.Nhập điểm thi đại học của thí sinh

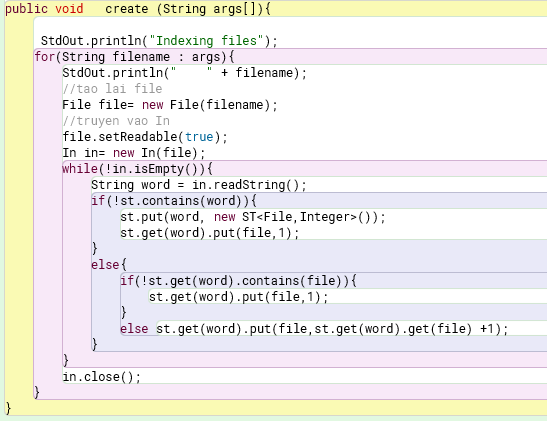


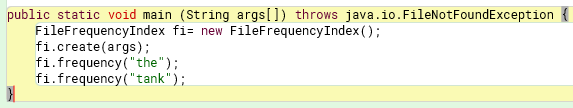


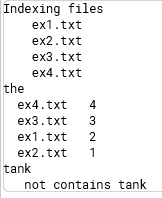
32.File Frequence Index( tạo )



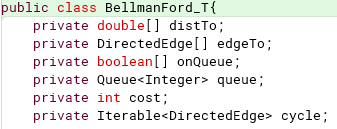


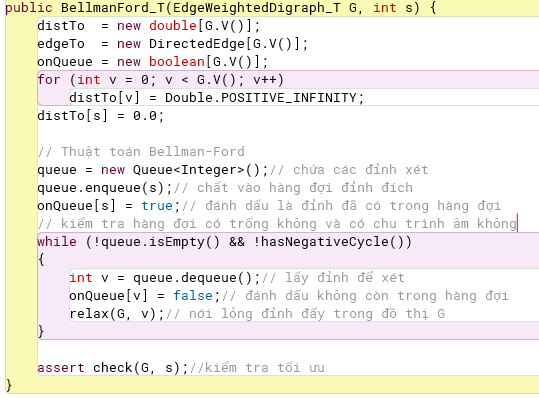


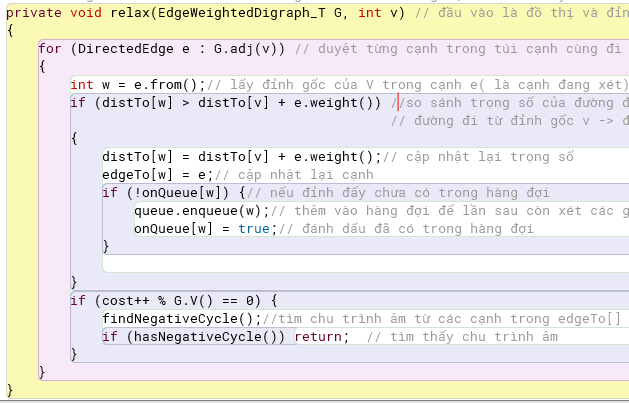




33.Bellmanford\_T

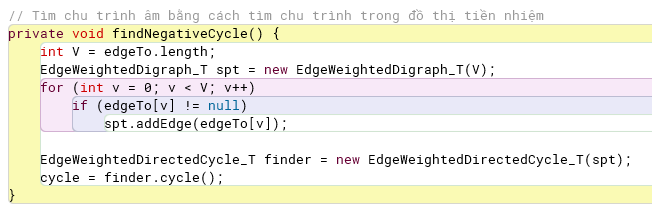


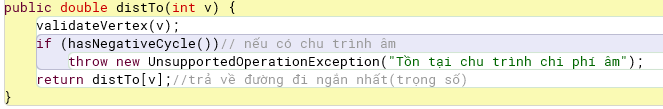


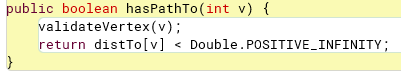


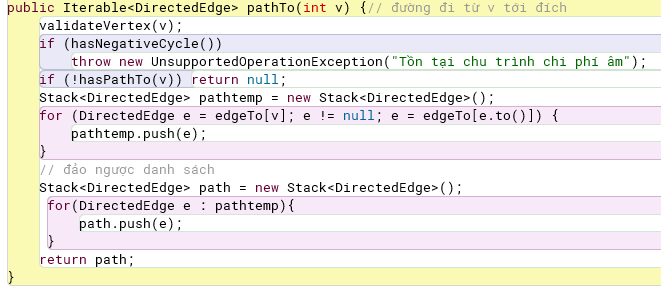


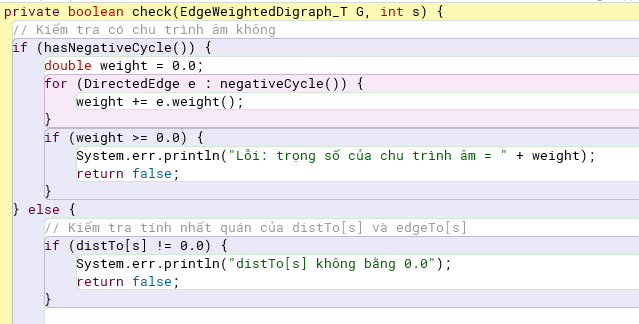


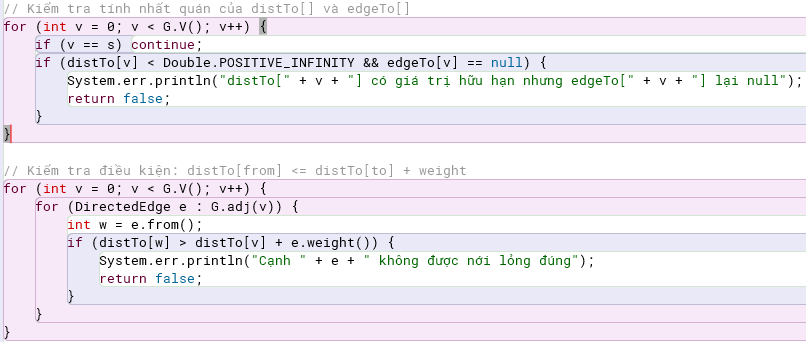


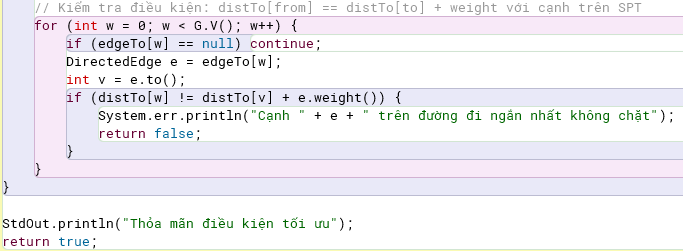


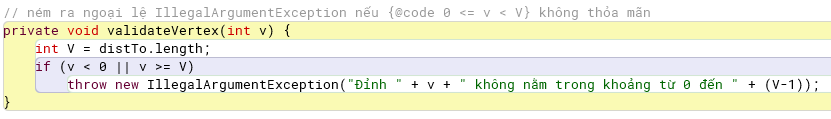


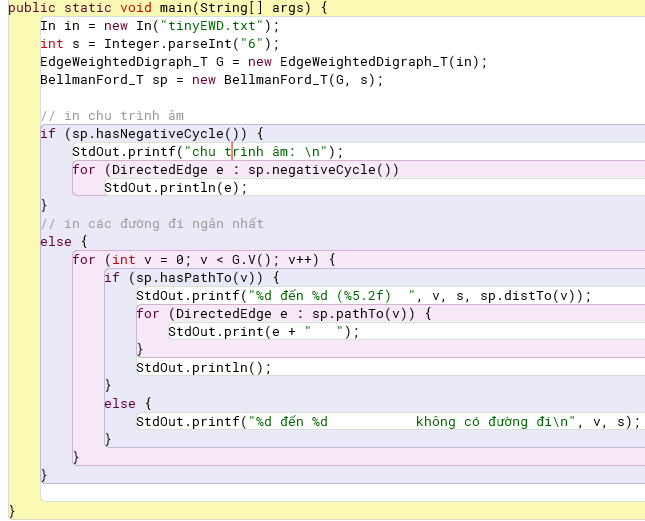


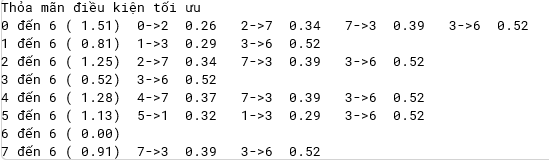




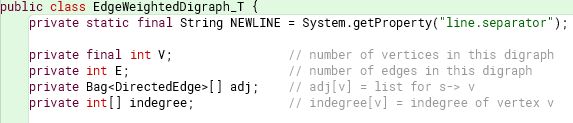


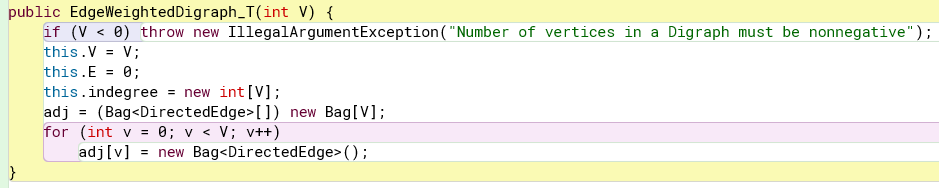


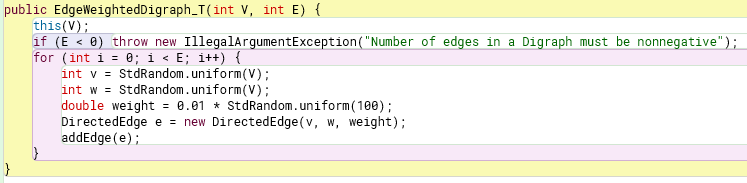


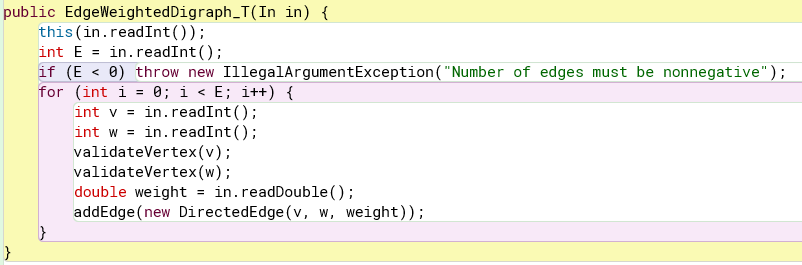


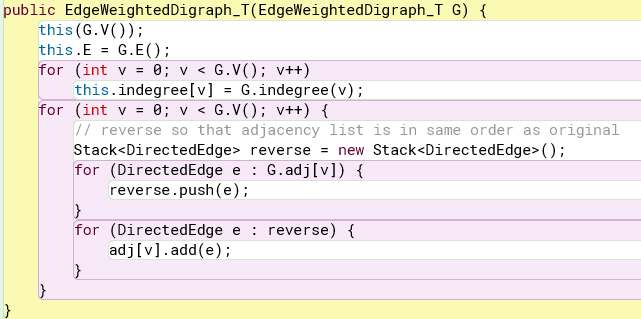
34.EdgeweightDigraph\_T

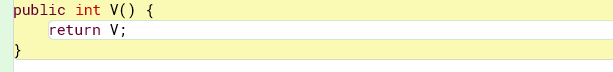




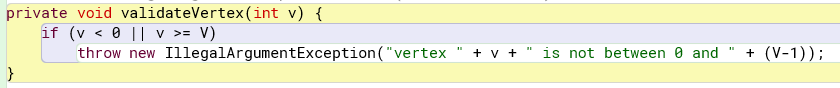


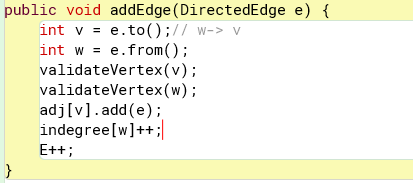


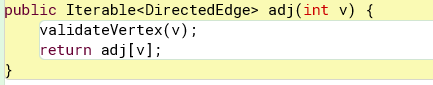


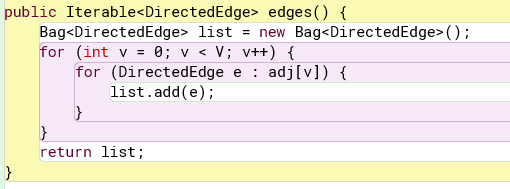


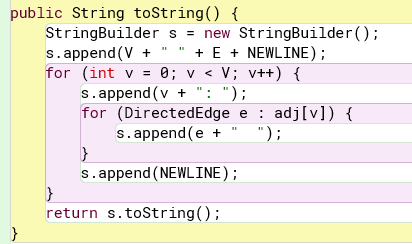


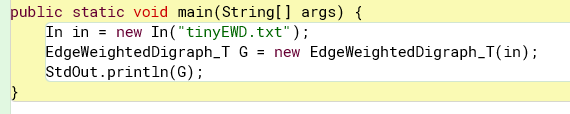


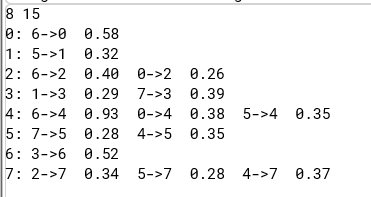




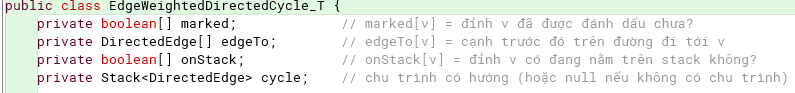


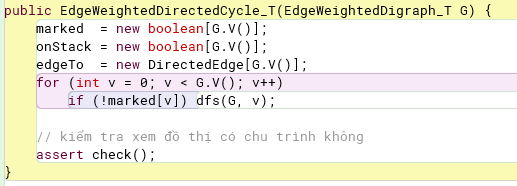


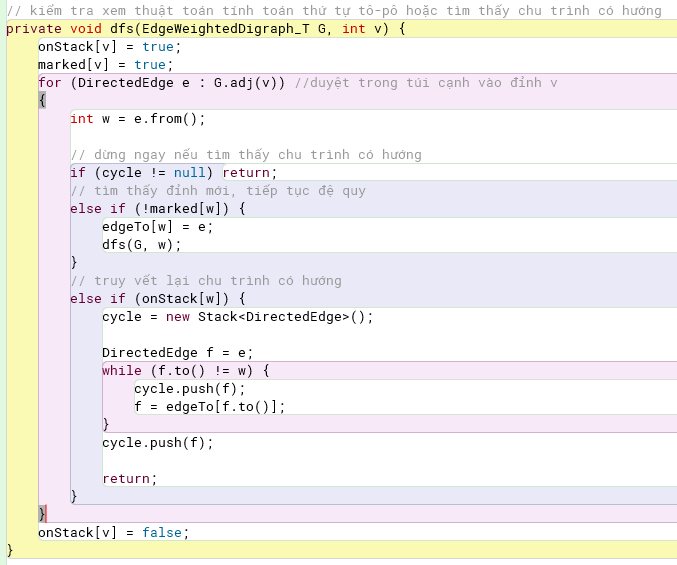




35. EdgeweightDigraphCyrcle\_T

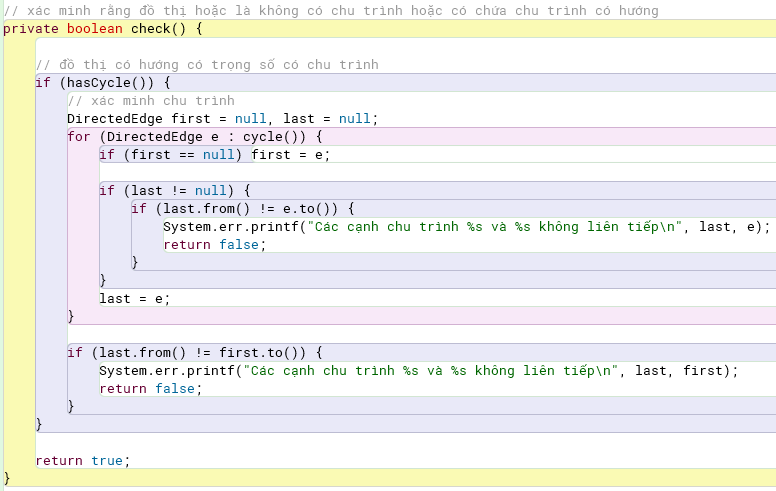


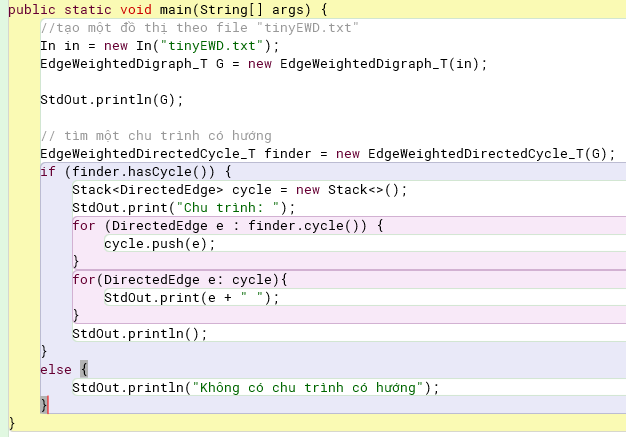


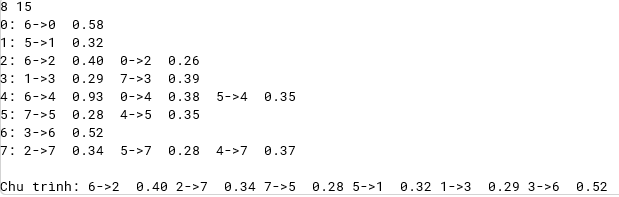




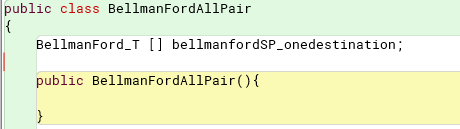


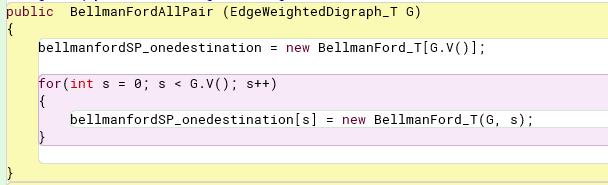


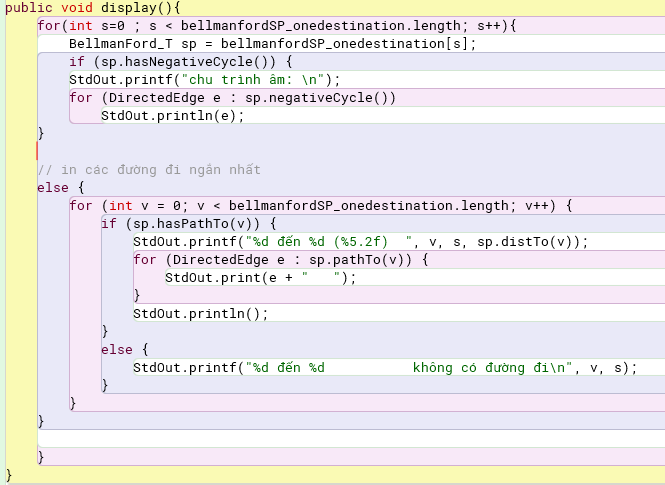


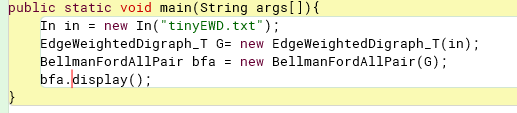


36.BellmanFord all pair









37.FordFullkerson with cut