Developed By:-

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An Automated Time Table Generator

1. Description

Time Table Generator is an application that guides user about time table management system. This system's main advantage is it eases scheduling of lectures which is mostly done manually. A college time table is a temporary arrangement of set of lectures and classrooms in which all given constraints are satisfied.

The time table scheduling is a constraint satisfaction problem in which solution is the one that satisfies the given set of constraints which are comprised of such as student subjects, faculty data, work load etc. By automating this process, we can save a lot of time administrators who are involved in managing routine timetables.

The proposed system will allow user to enter details and constraints and then shall generate an optimal timetable and will provide good interface for user. Thus, user can easily get required information.

2. Informal Requirements

- Unique product key be provided for a new user.
- With easy and good interface user after logging into software would be able to view different features of product.
- Easy navigation is available throughout each feature for making product understandable.
- User can easily add subject details along with time duration for schedule which are mandatory specifications.
- Other constraints that will be included are faculty details, room's available, lab's needed, time gap etc. among constraints are mandatory.
- Optional constraints include faculty preference, time of work etc.
- An easily explainable timetable is generated henceforth.
- This timetable generated should be unambiguous and consistent to the data specified.
- This feature may or may not include faculty that will be replaced in case of one's absence or emergency manual switching of time, manual insertion/deletion/updating of schedule, subject etc.

3. Formal Requirements

1.External Interface Requirements

1.1 User Interface

On this system, the standard interface available for user are login page, sign up page, courses page, resource page, classes page, instructor page and a timetable generated page etc.

1.2 Hardware Interface

This system shall work with some platform like laptops, PCs (platform independent).

1.3 Software Interface

This system would work on devices with support of internet, JAVA 8.0+, Database such as MySQL, Oracle, MongoDB etc. It also requires IDE such as NetBeans, Eclipse etc.

1.4 Communication Interface

This system would require a driver such as JDBC, JDBC-ODBC etc. that shall connect our system with a database.

2. System Features

2.1 Manage login

This module manages login of any user of this system.

2.1.1 Login Module

This login page shall appear to any user of this system.

Input: Email/Username, password

Output: Login success message

2.1.2 Sign Up Module

This page shall sign up a new user to this system.

Input: Email/Username, Password, Confirm Password

Output: Sign Up Success message

2.2 Manage courses and instructors

This module will manage courses and instructors related to courses as per user's credentials.

2.2.1 Add Courses

In this module user can add courses that should be available at the time of creation of time table.

Input: Course code, Course name

Output: Success message

2.2.2 Add Instructor

In this module user can add instructors as per the courses they are going to conduct.

Input: Instructor Name

Output: Success message

2.2.3 Delete Courses

In this module user can delete an instructor as per their choice.

Input: Delete course request

Output: Success message

2.2.4 Delete Instructors

In this module user can delete an instructor as per their choice.

Input: Delete Instructor request

Output: Success message

2.3 Manage Resources

This module will manage resources as per user's choices.

2.3.1 Add/Delete Working days

In this module user can select the working days by clicking the checkbox beside it.

Input: Checkbox request

Output: Success message

2.3.2 Add Rooms/Labs

In this module user can add rooms/labs as per their choice.

Input: Room name

Output: Success message

2.3.3 Add Groups

In this module user can add groups like First year, Second year etc.

Input: Group name

Output: Success message

2.3.4 Delete Rooms/Labs

In this module user can delete rooms/labs as per their choice.

Input: Delete Rooms/labs request

Output: Success message

2.3.5 Delete Group

In this module user can delete group as per their choice.

Input: Delete Group request

Output: Success message

2.3.6 Add number of periods per day

In this module user will type number of periods per day.

Input: Number of periods

Output: Success message

2.4 Manage Classes

This module will manage classes as per user's inputs.

2.4.1 Add Class

In this module the classes would be added by the user from the available resources given by the user.

Input: Group, Type, Course, Instructor, Room

Output: Final list updated

2.4.2 Delete Class

In this module user can delete class as per their choice.

Input: Delete class request

Output: Success message

2.5 Manage Schedule

This module will generate Time table according to the resource's user wants and specified.

2.5.1 Generate Table

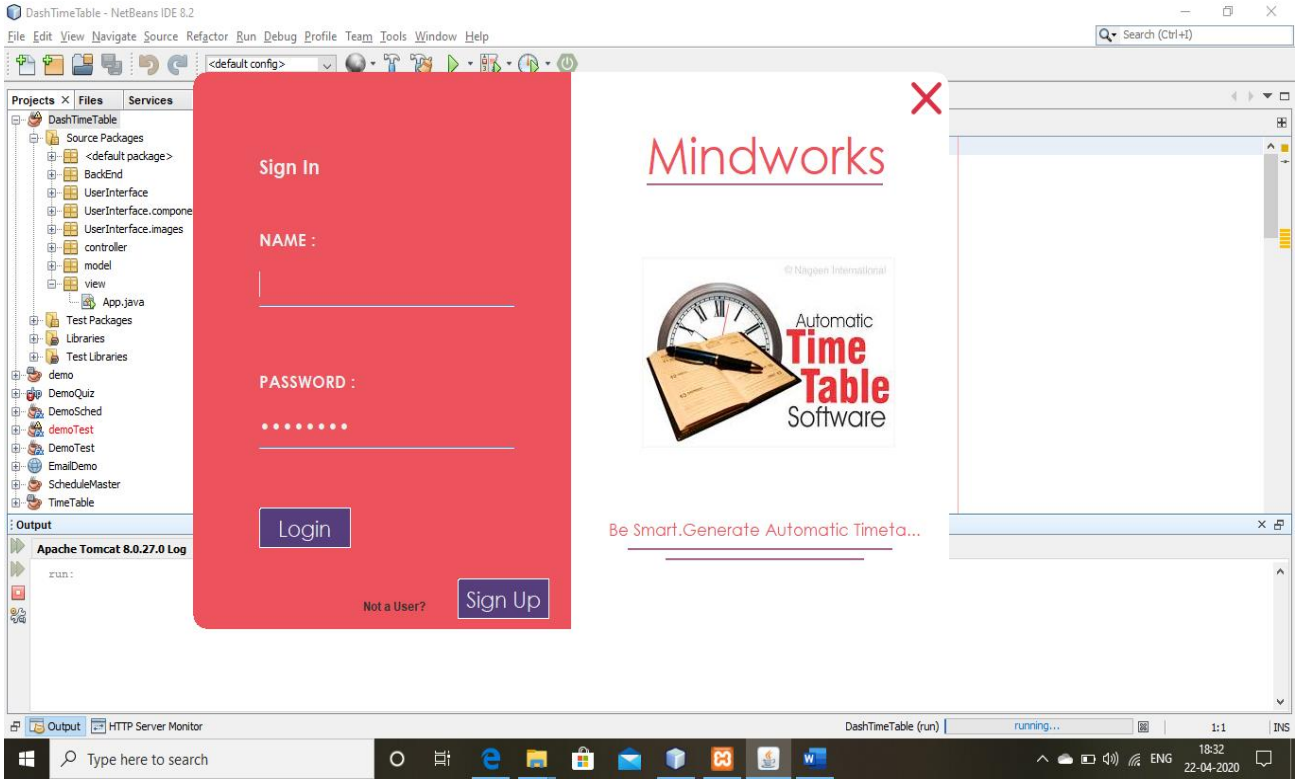
In this module system will generate a time table.

Input: Generate Time Table Request

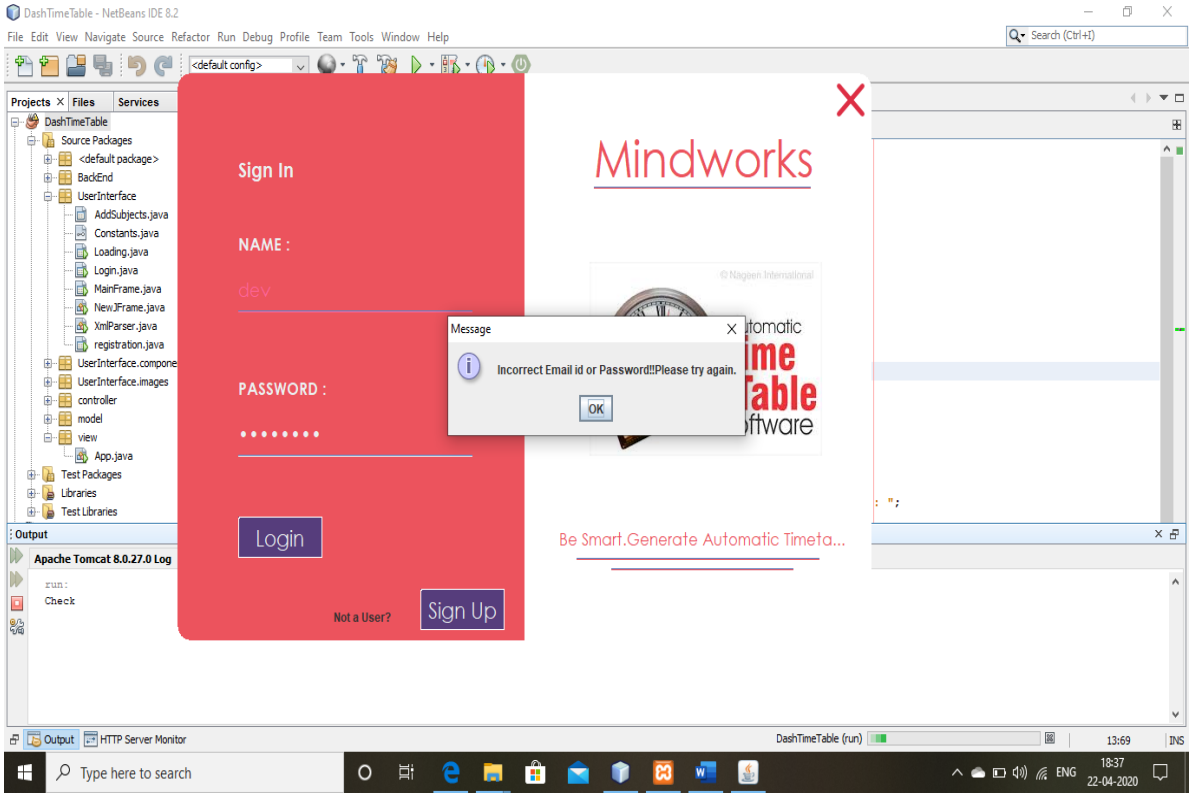
Output: Time Table generated

- Screenshots of implemented project

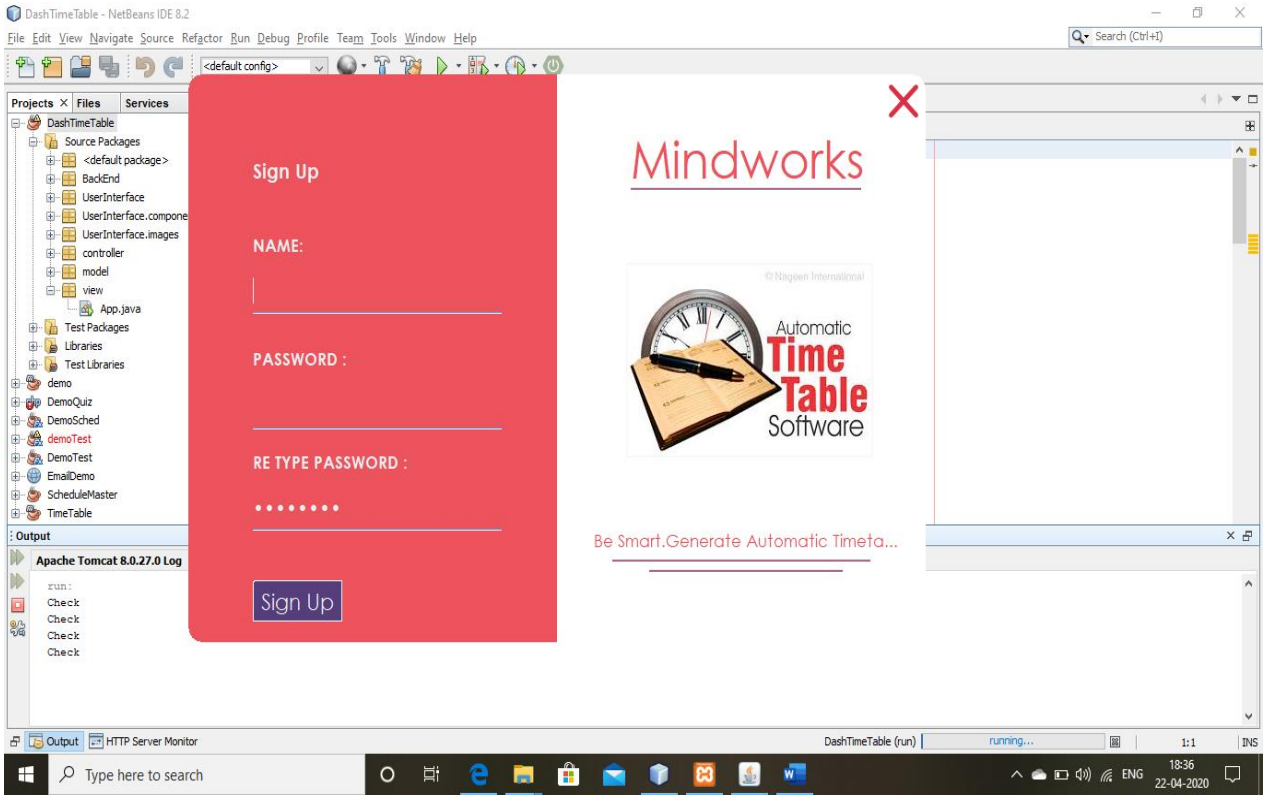
1. Login Screen



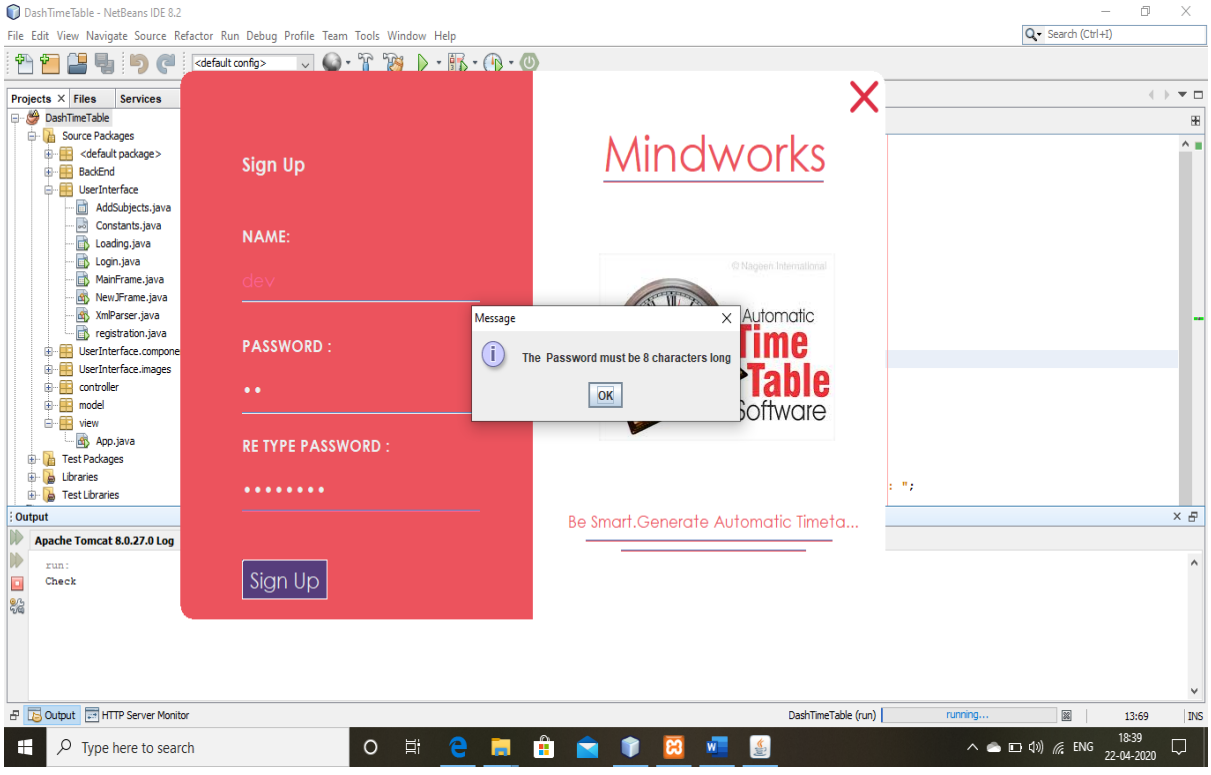
2. Invalid Message Screen in case of invalid credentials



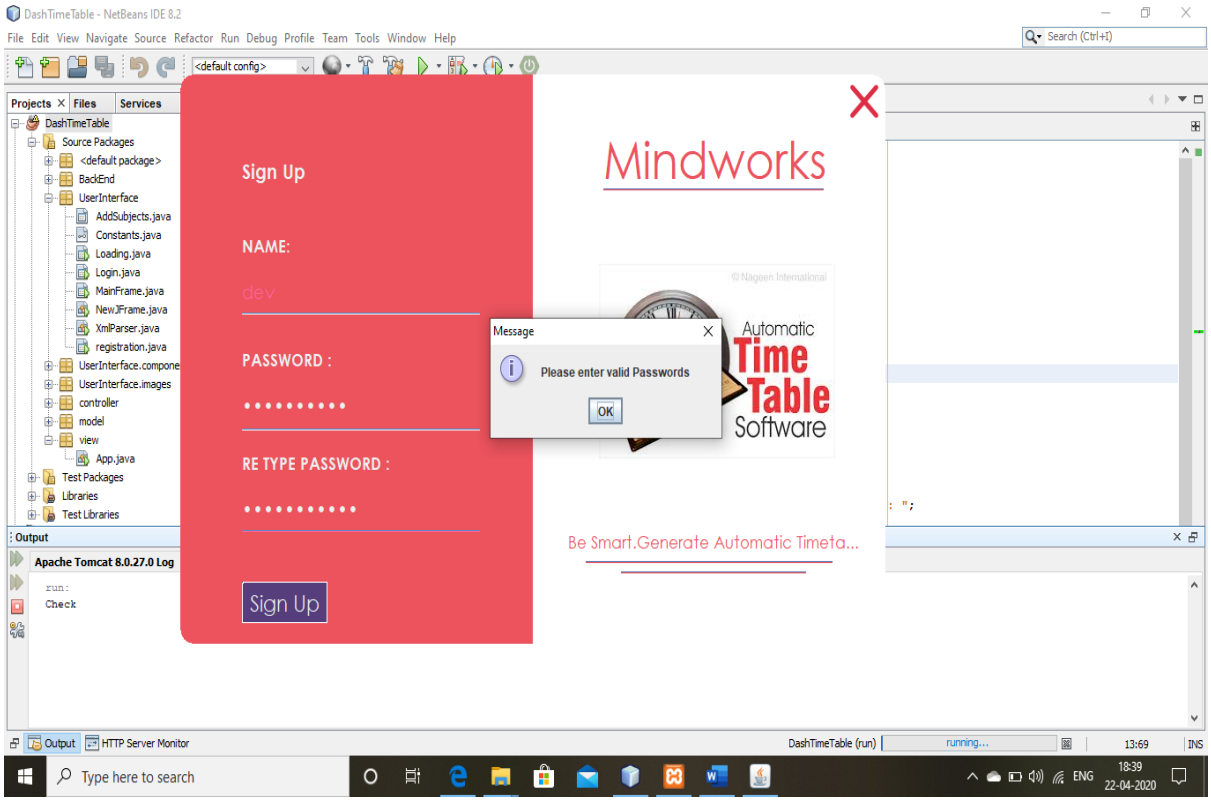
3. Sign Up Screen



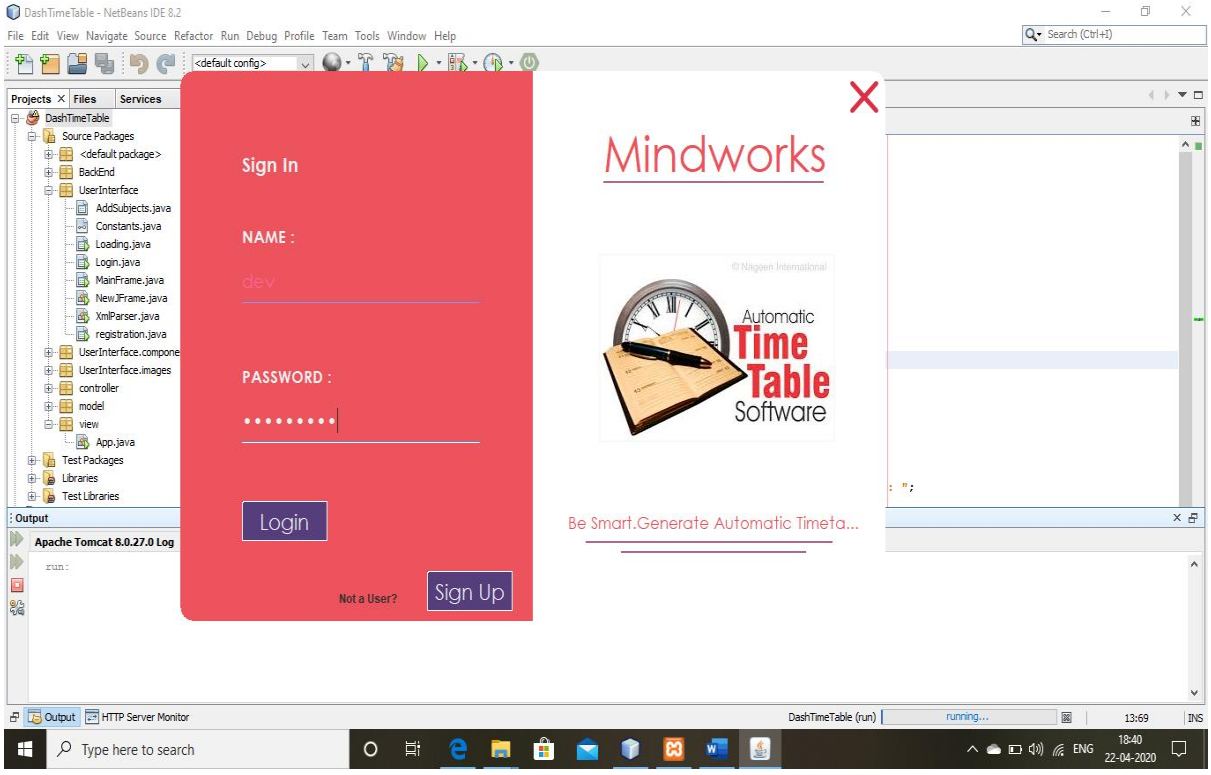
4. Password restriction message screen in case of password requirements not met



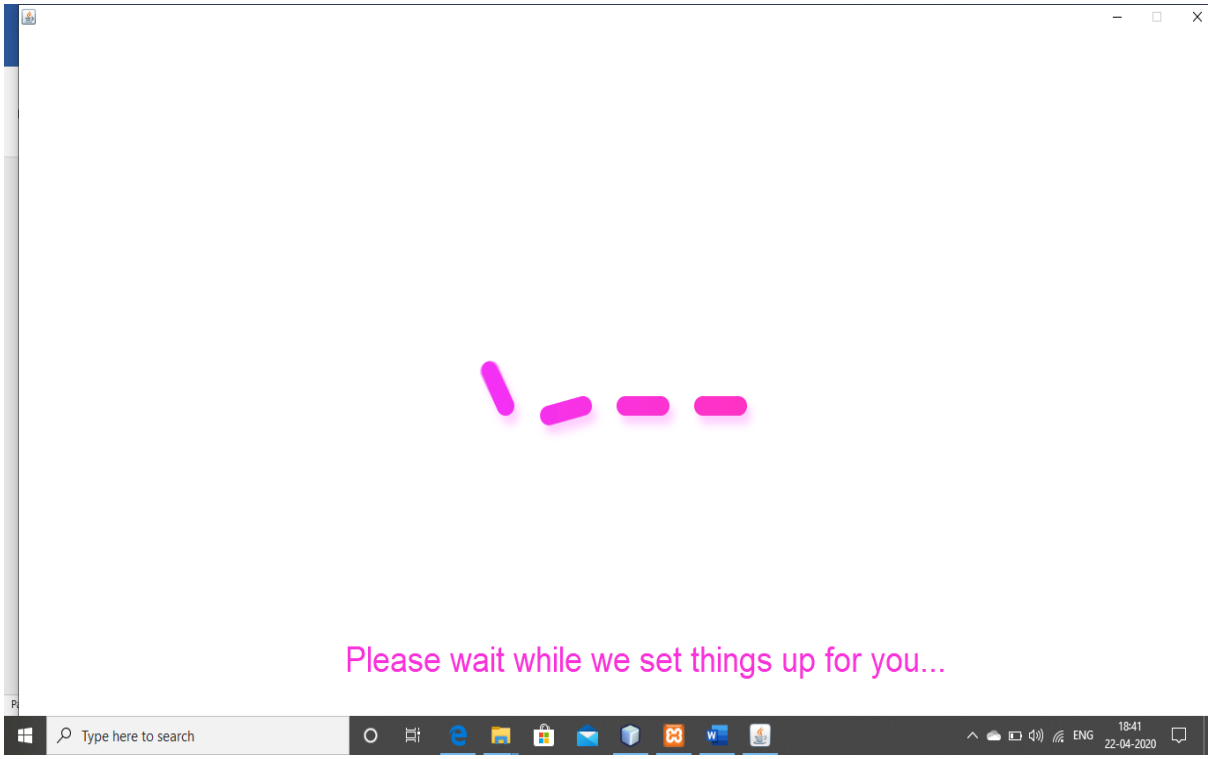
5. Invalid password message screen in case of not matching passwords



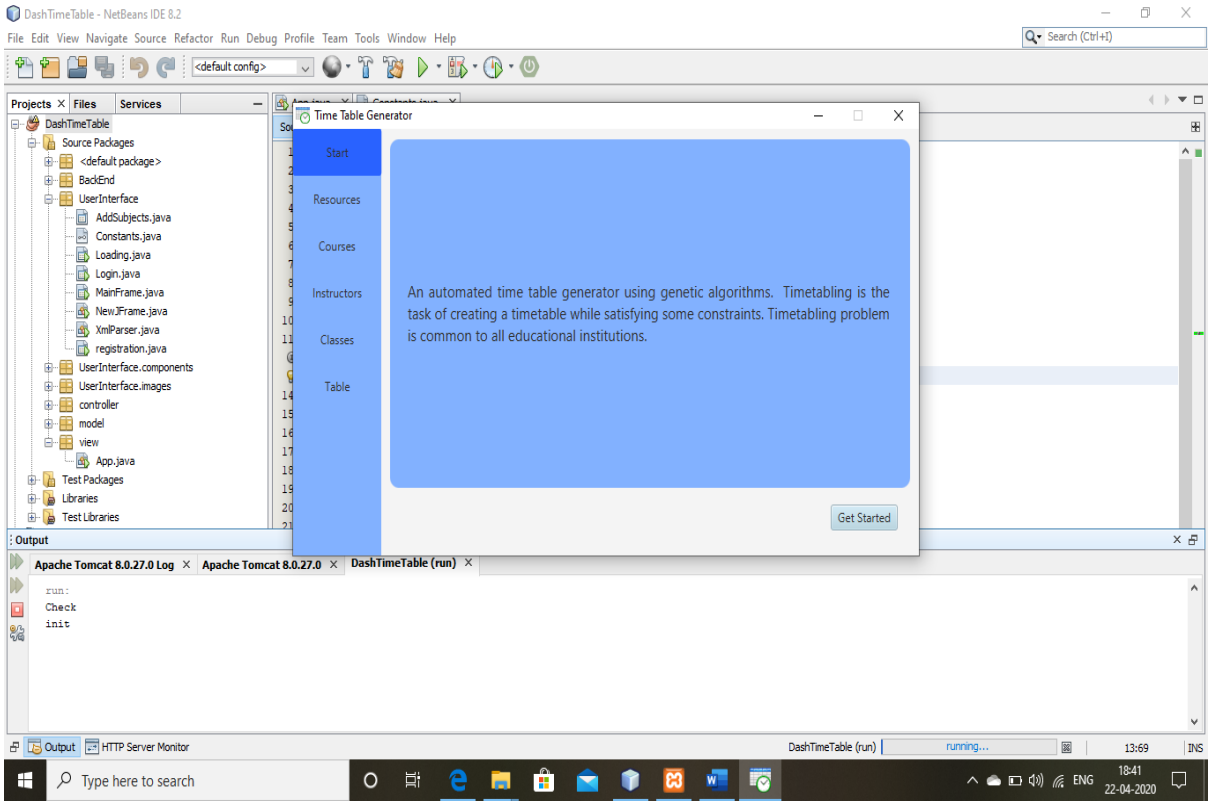
6. Login screen when registered user logs in



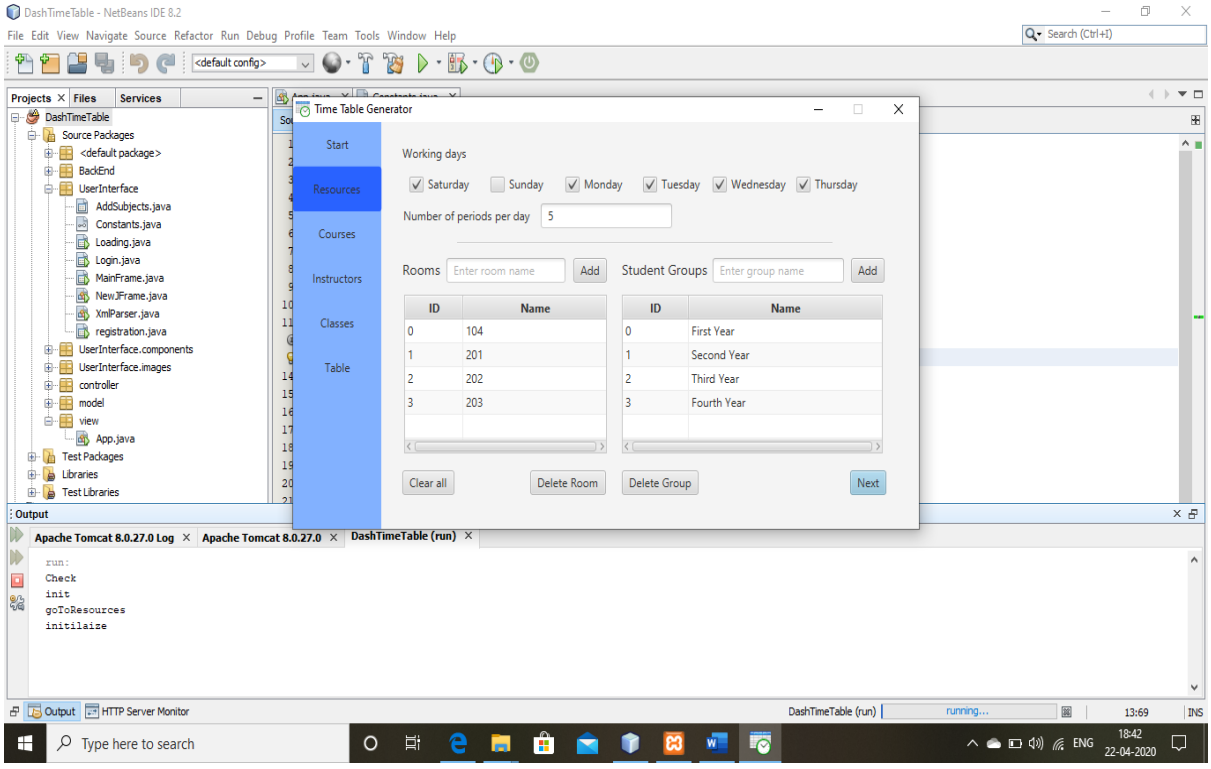
7. Loading Screen in case of login or sign up success



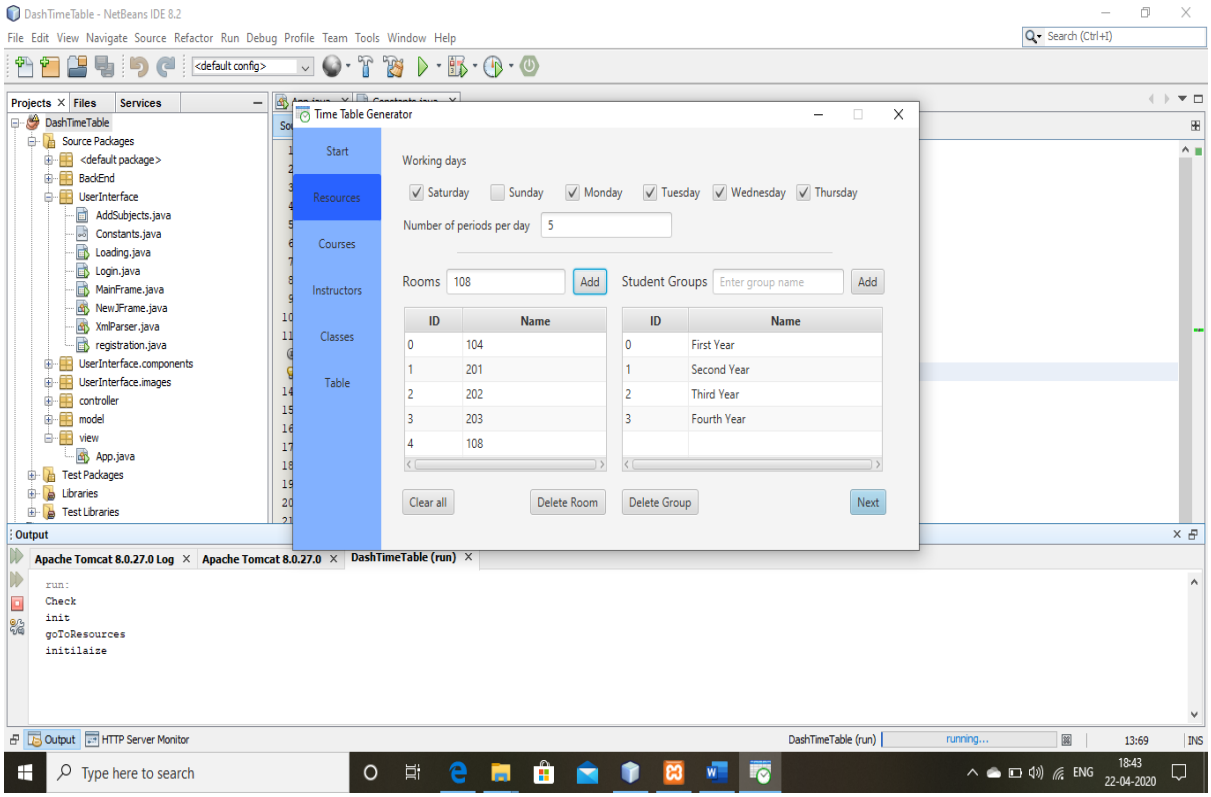
8.Home or About Screen



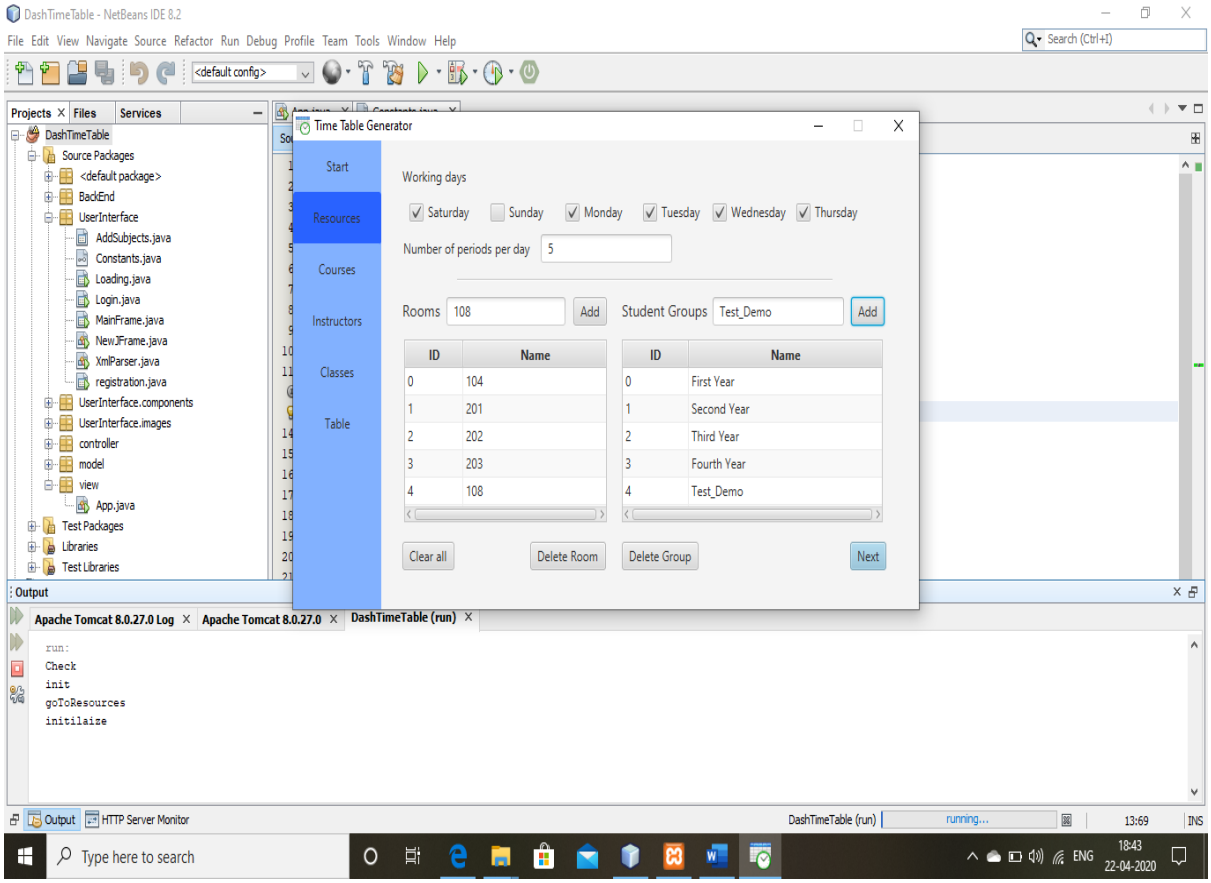
9. Resources Tab after pressing get started in Home Screen



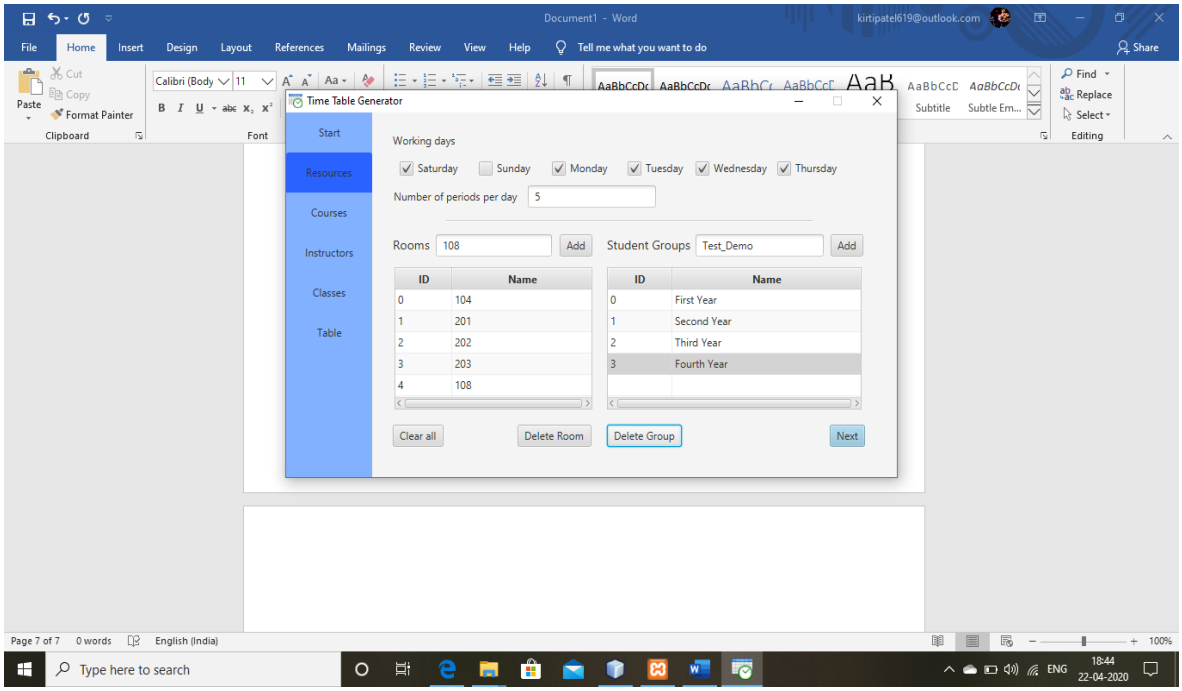
10. Adding Room 108 to the Rooms table



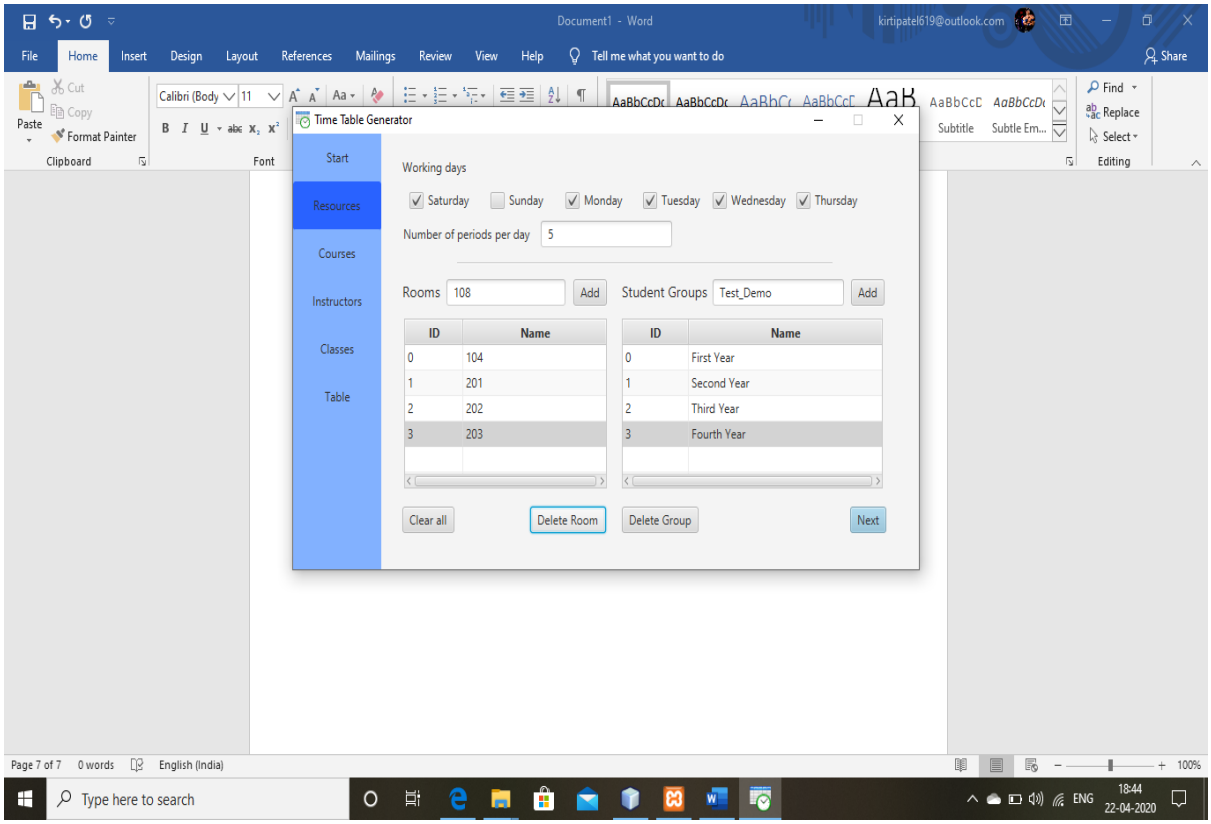
11. Adding Test Demo Group to Student Groups table



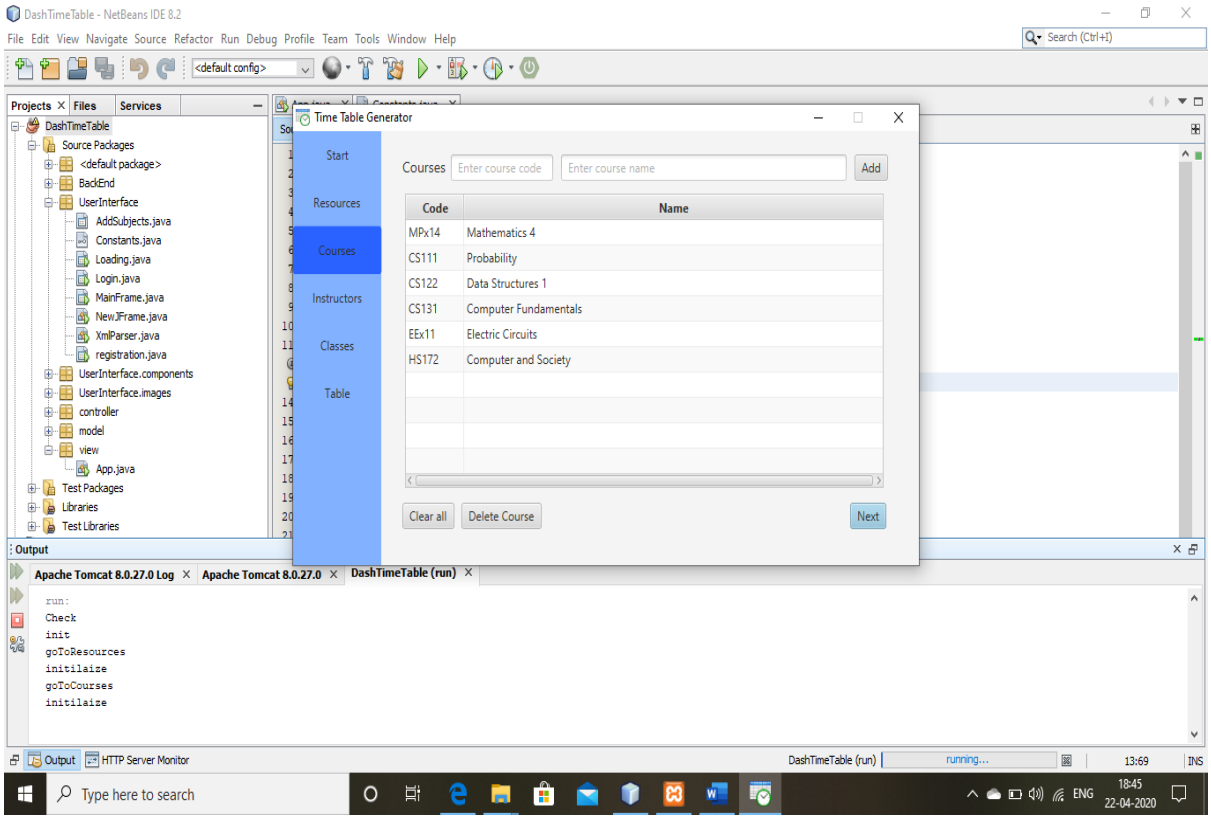
12. Delete A selected group from student Groups Table in this case Test Demo



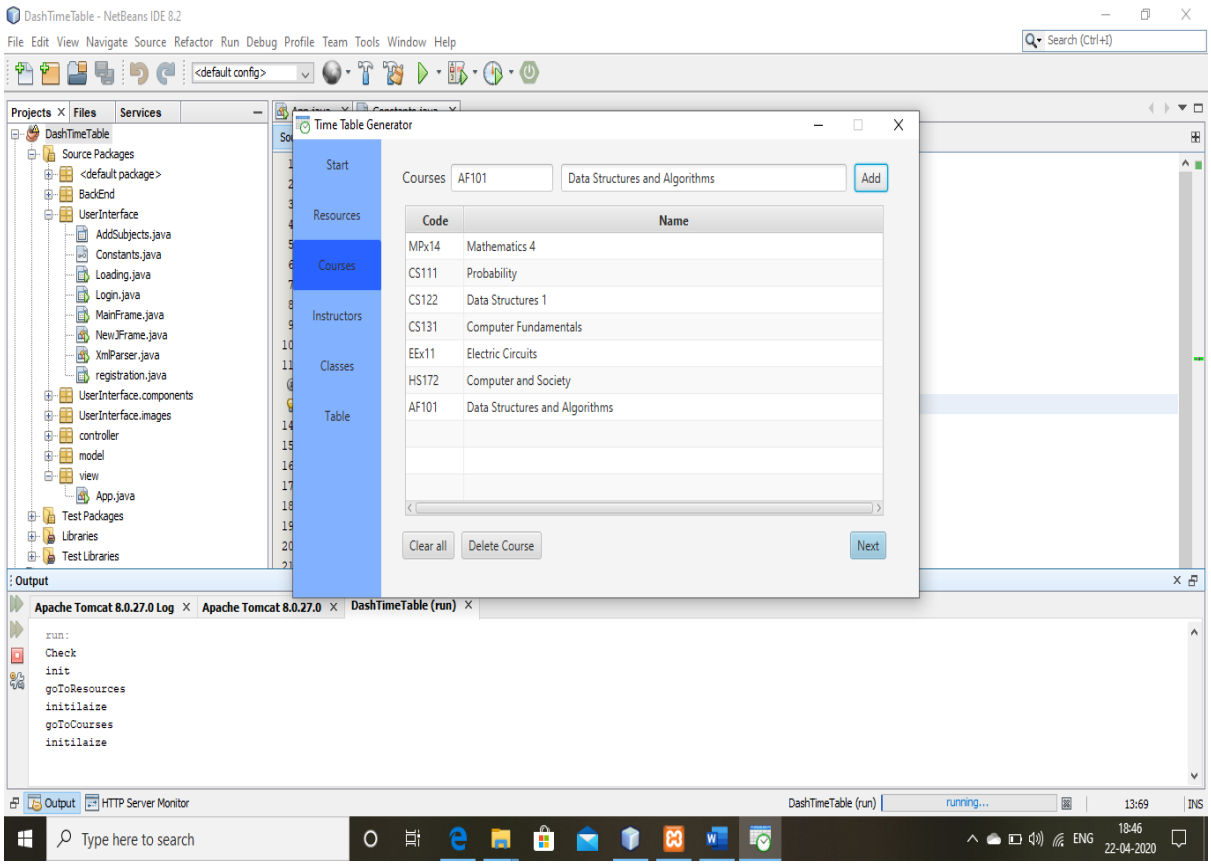
13. Delete Selected Room from the Rooms table in this case Room 108



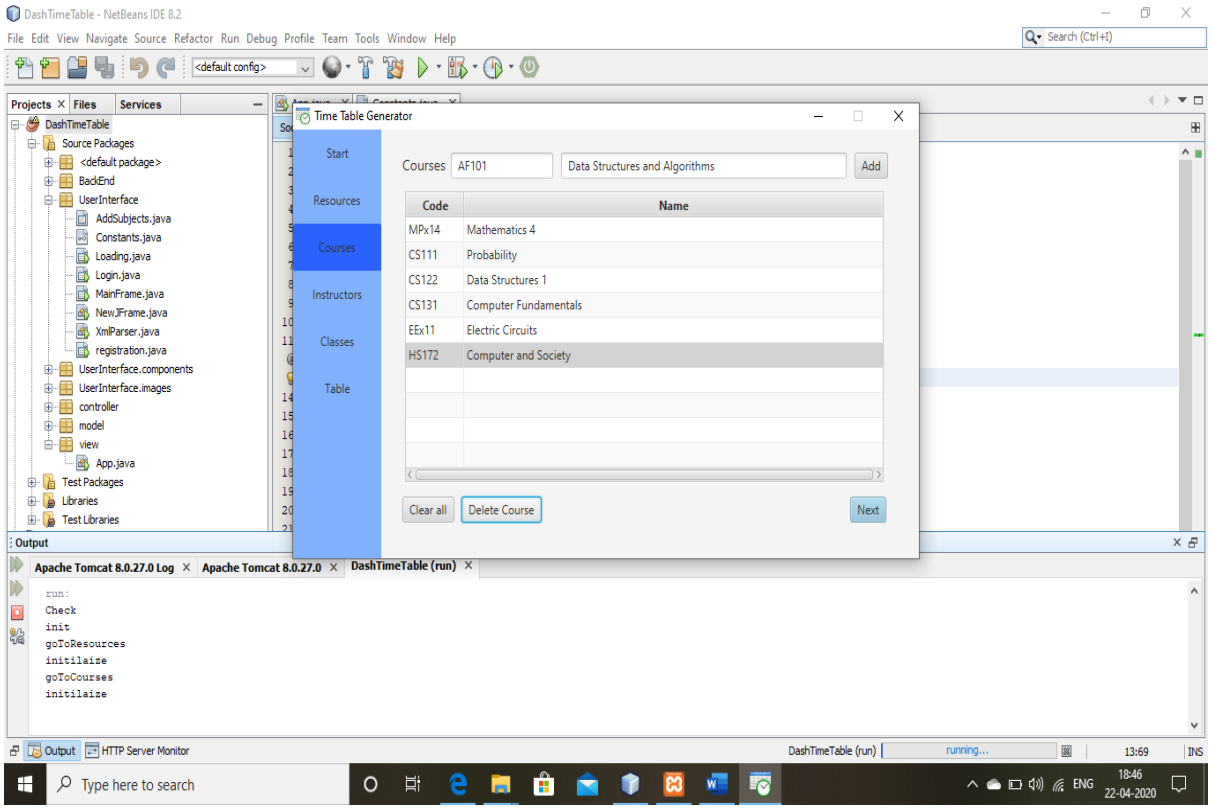
14. Courses Screen in case of next button being pressed



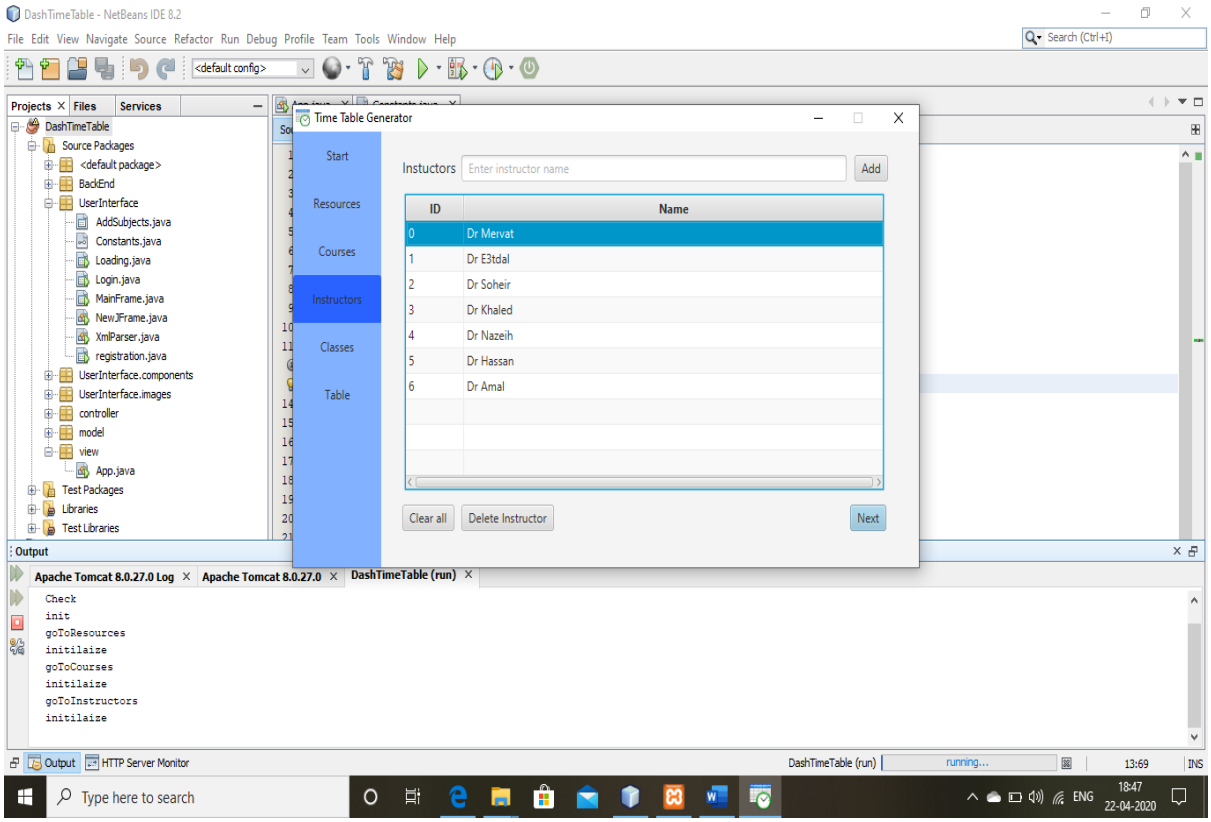
15. Add Courses screen in this case AF101 DSA



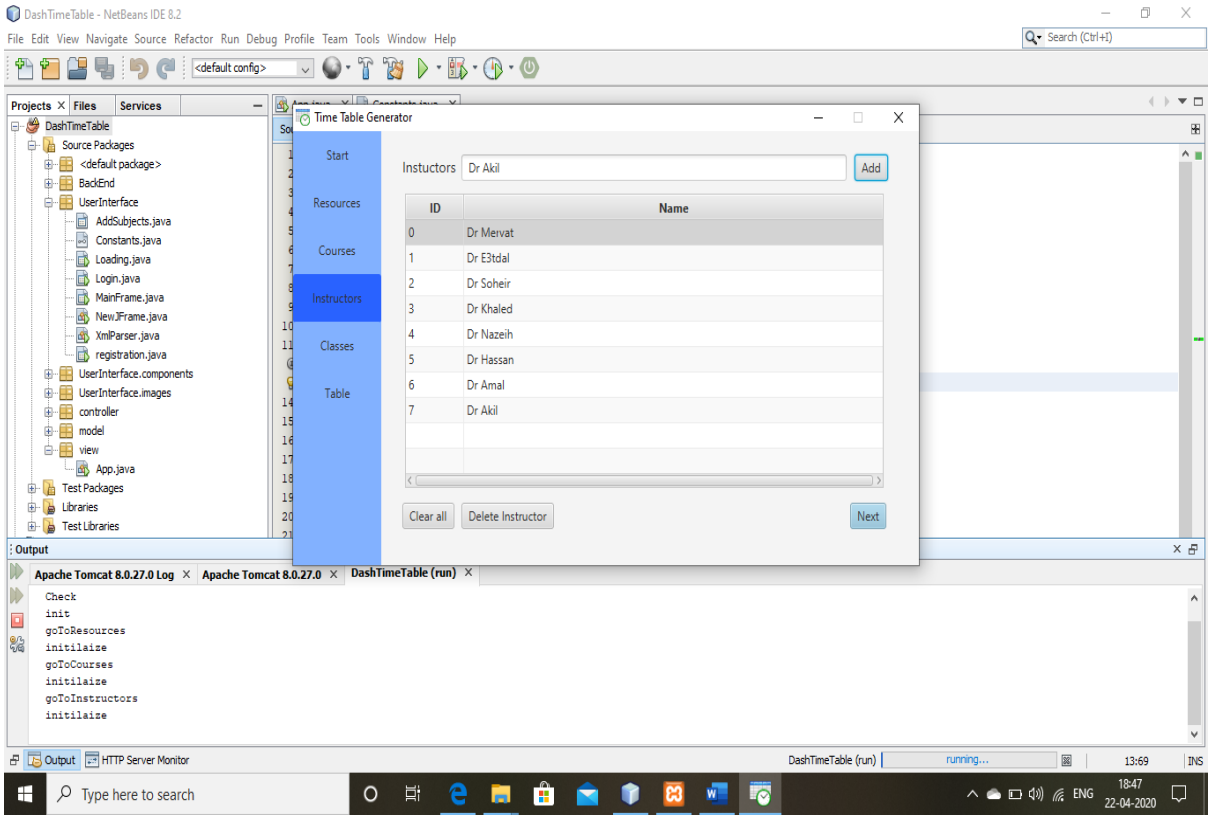
16. Delete Selected course in this case AF101 DSA



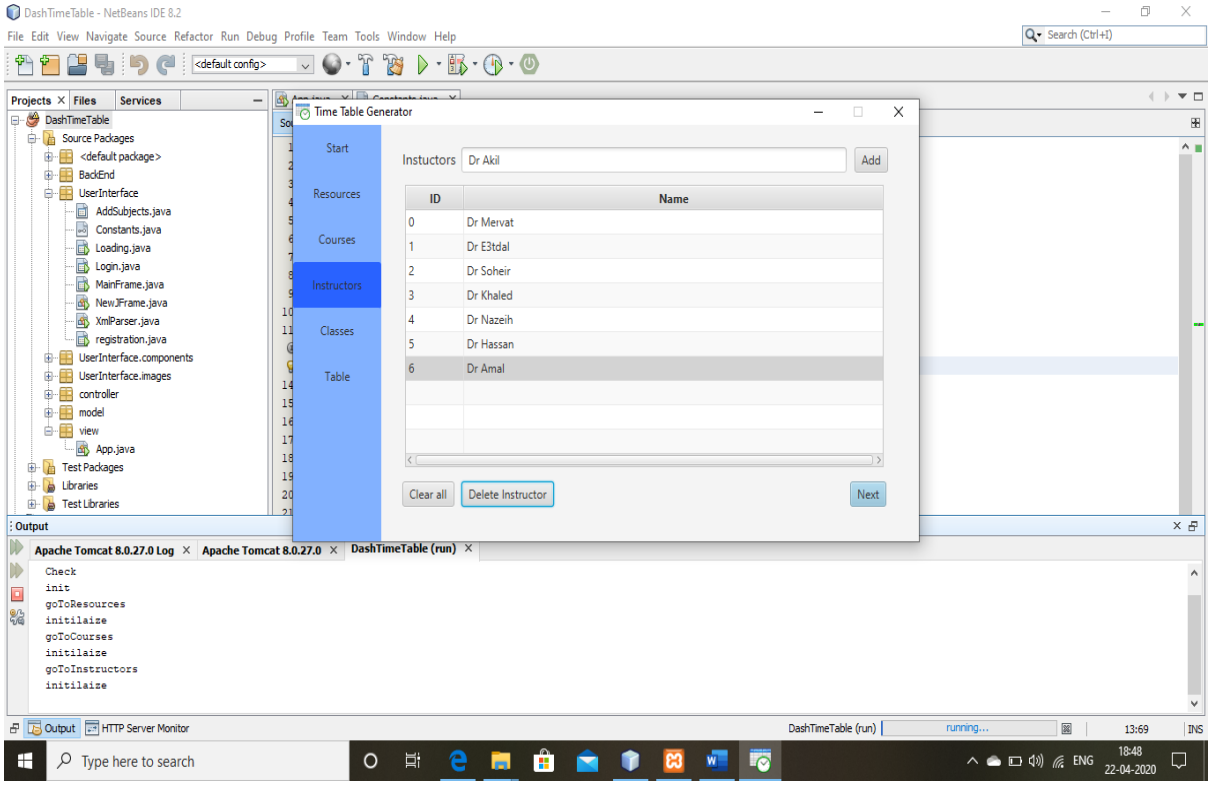
17. Instructor screen in case of next



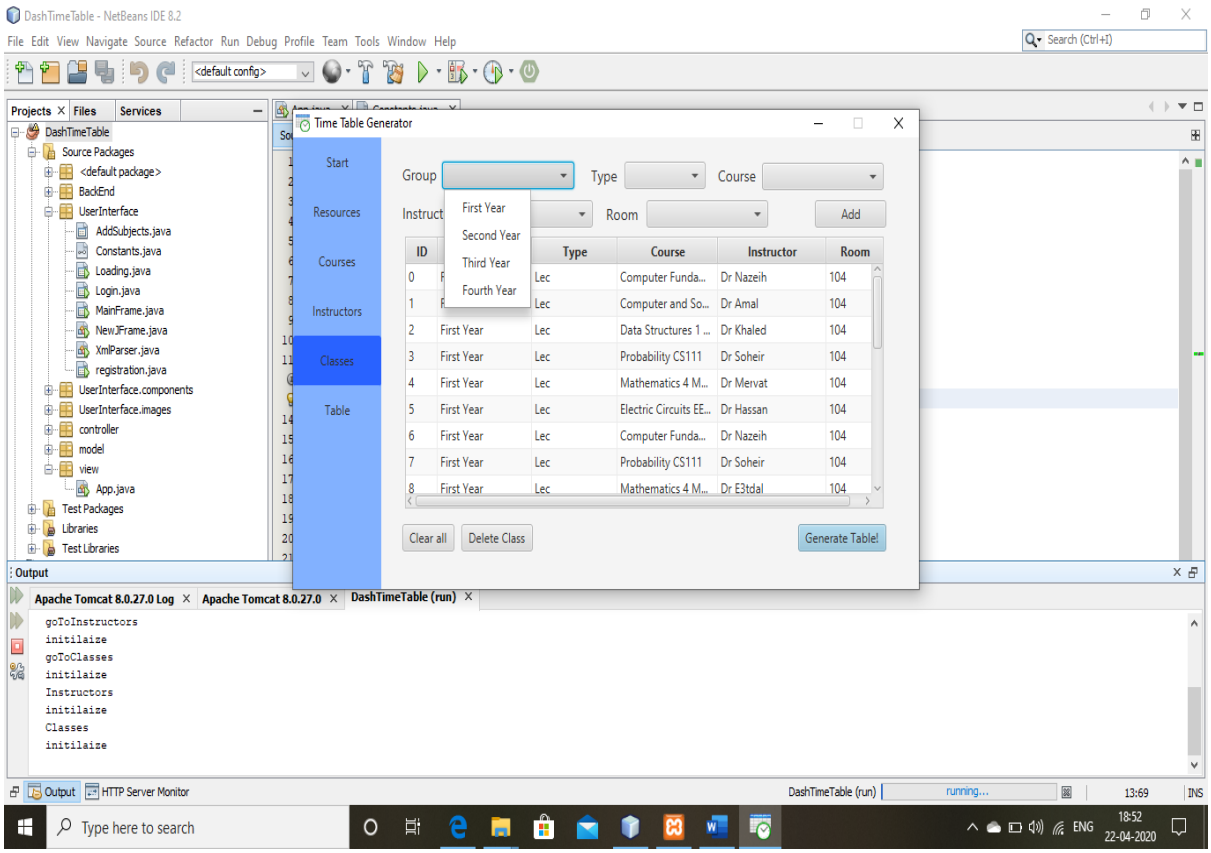
18. Add Instructor Screen Dr. Akil

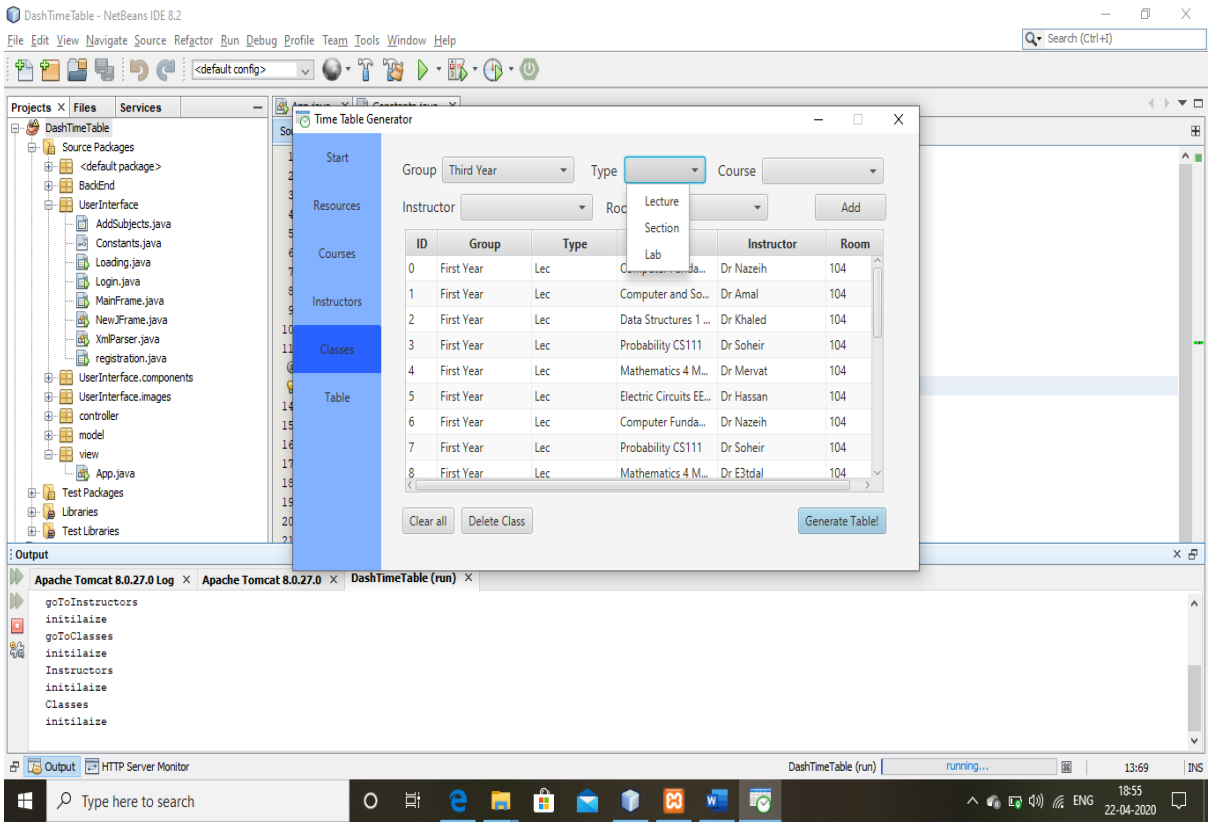


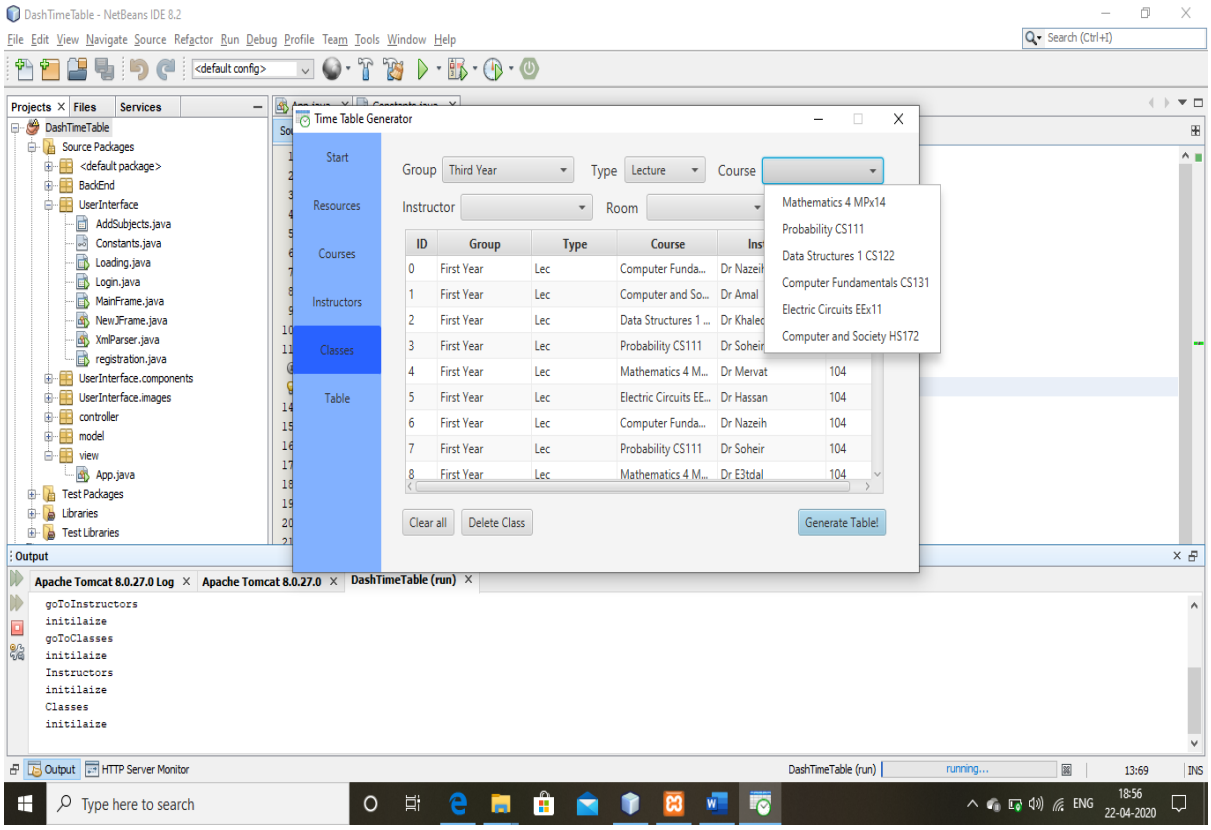
19. Delete Instructor Dr. Akil

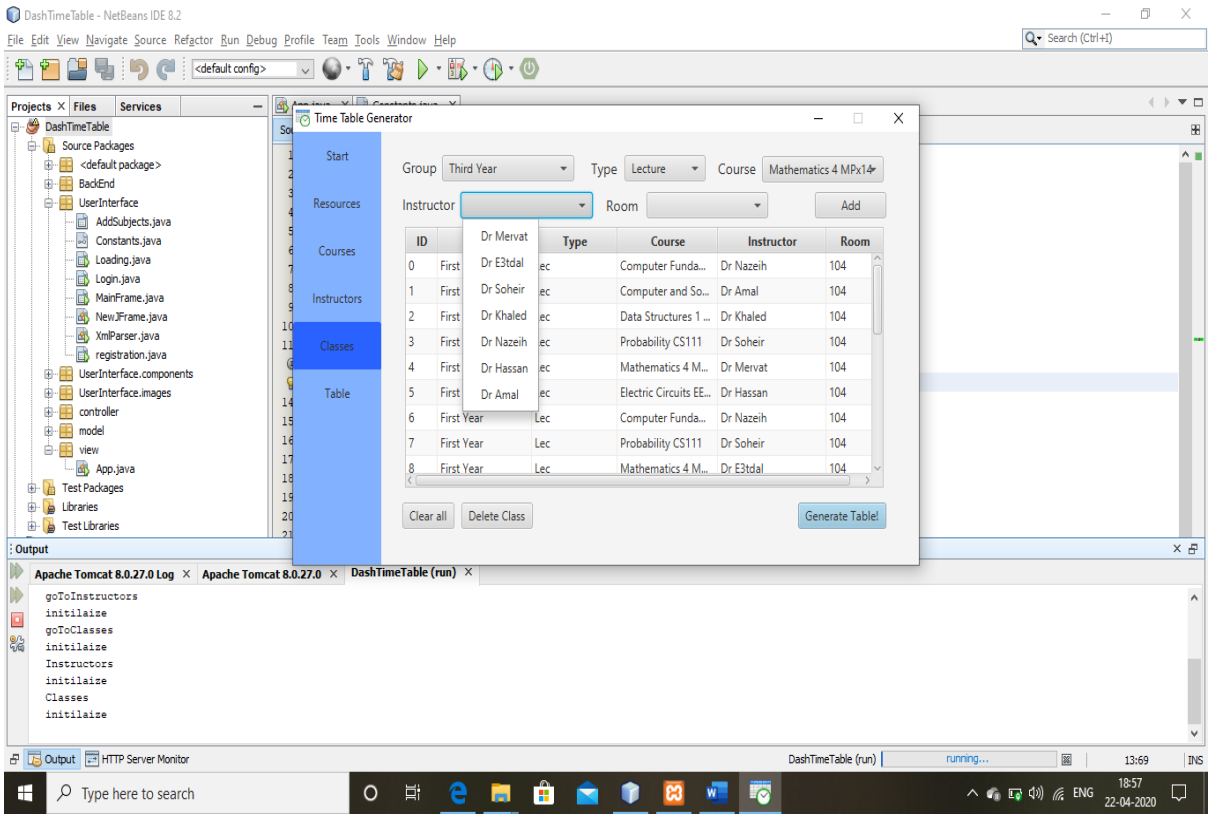


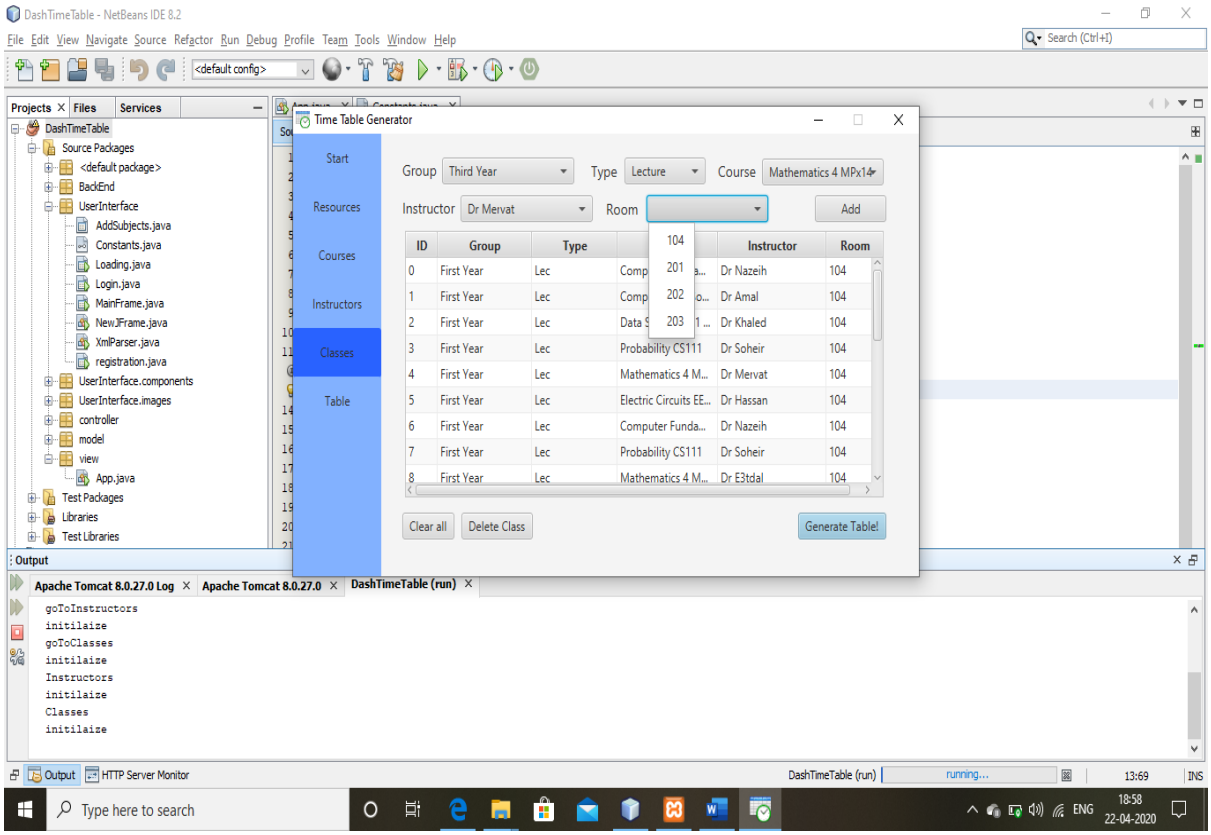
20. Following are screenshots of Classes tab where available courses, instructor, groups, rooms and type of classes are shown by a drop-down menu



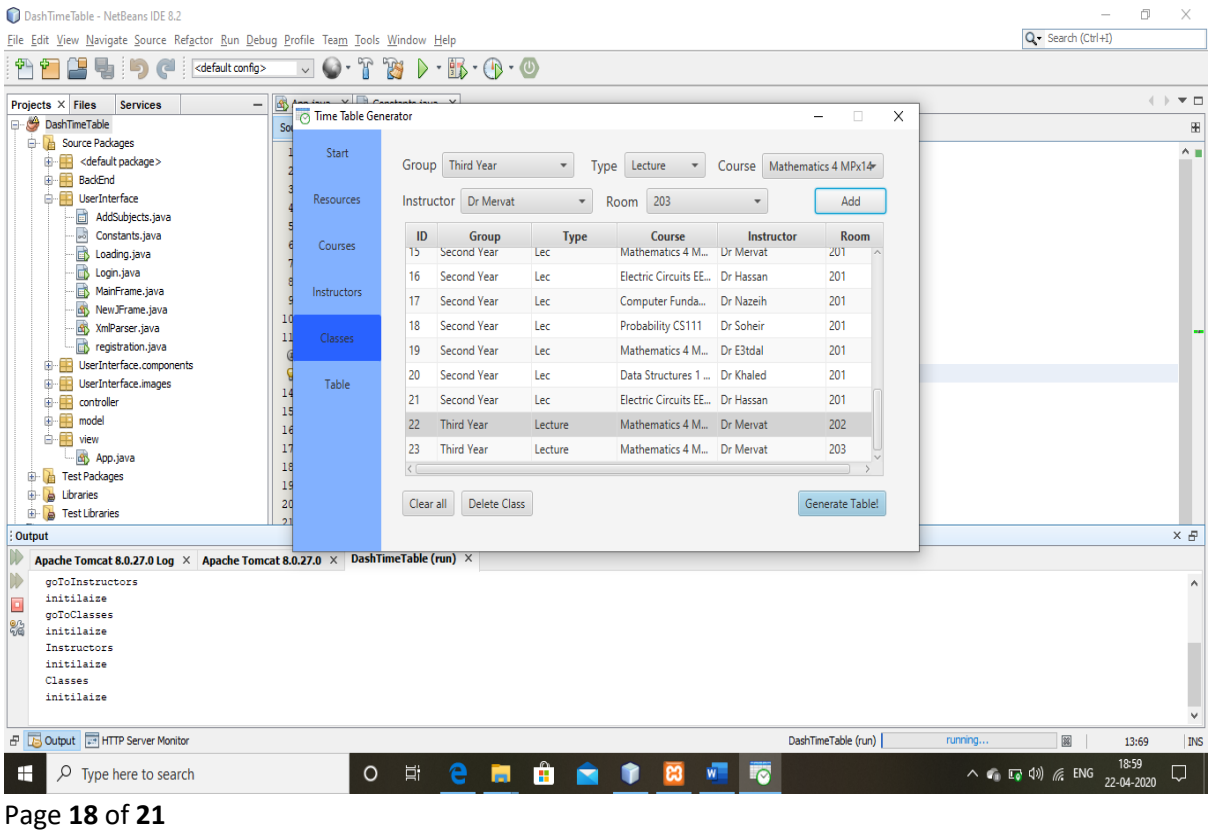



DashTimeTable - NetBeans IDE 8.2
Time Table Generator
Start
Resources
Courses
Instructors
Classes
Table
Group
Third Year
Type
Lecture
Course
Instructor
Room
Mathematics 4 MPx14
Probability CS111
Data Structures 1 CS122
Computer Fundamentals CS131
Electric Circuits EEx11
Computer and Society HS172
ID
Group
Type
Course
Clear all
Delete Class
Generate Table!
goToInstructors
initilaize
goToClasses
initilaize
Instructors
initilaize
Classes
initilaize

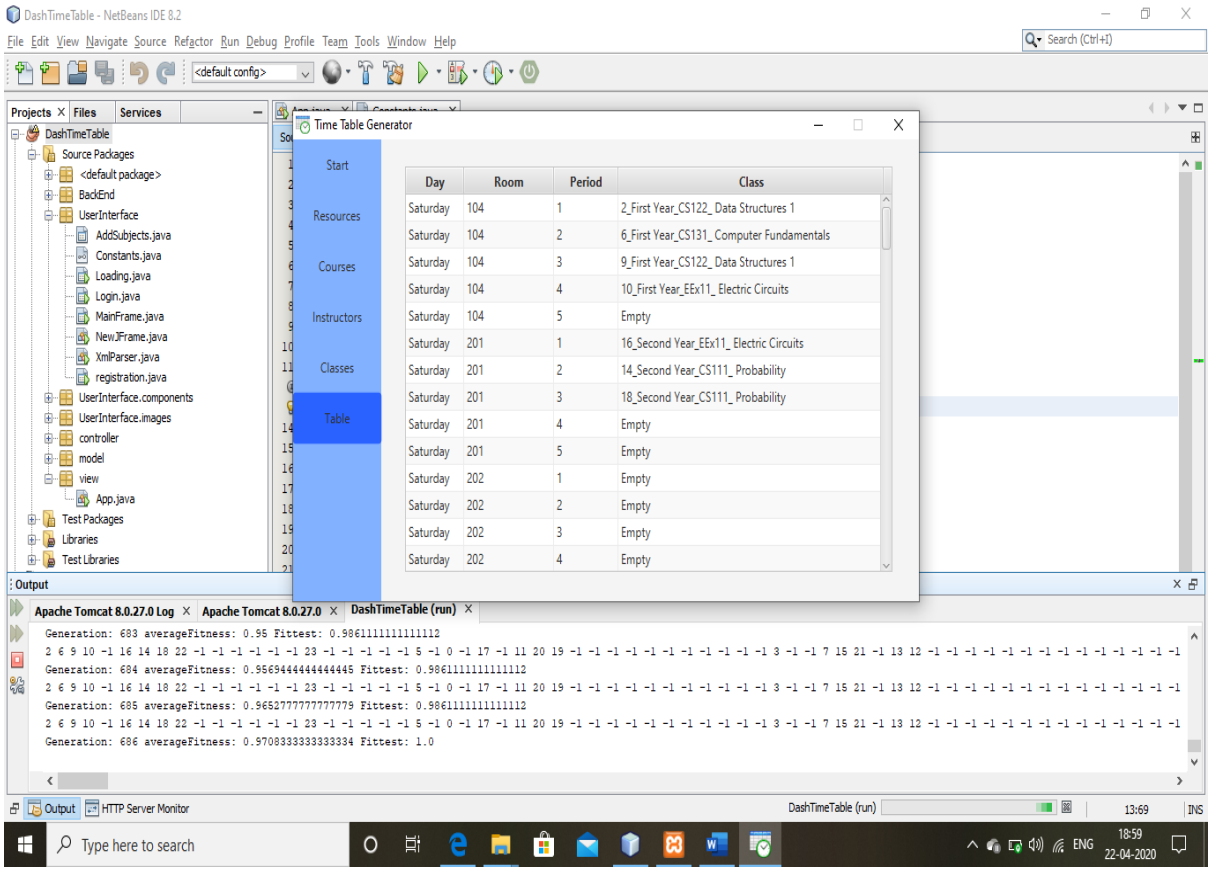

DashTimeTable - NetBeans IDE 8.2
Time Table Generator
Start
Resources
Courses
Instructors
Classes
Table
Group
Third Year
Type
Lecture
Course
Mathematics 4 MPx14
Instructor
Room
Add
Dr Mervat
Dr E3tdal
Dr Soheir
Dr Khaled
Dr Nazeih
Dr Hassan
Dr Amal
ID
Type
Course
Instructor
Room
Clear all
Delete Class
Generate Table!
goToInstructors
initilaize
goToClasses
initilaize
Instructors
initilaize
Classes
initilaize

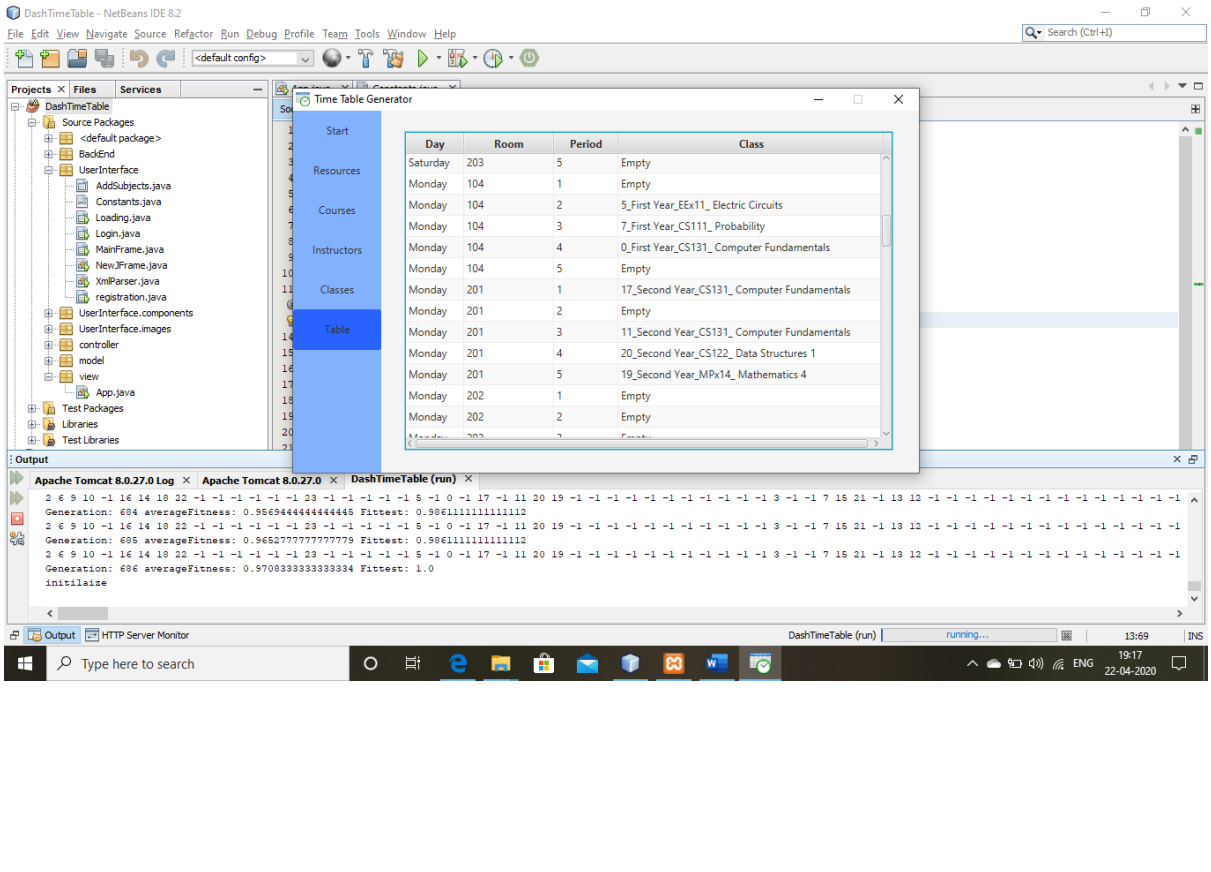


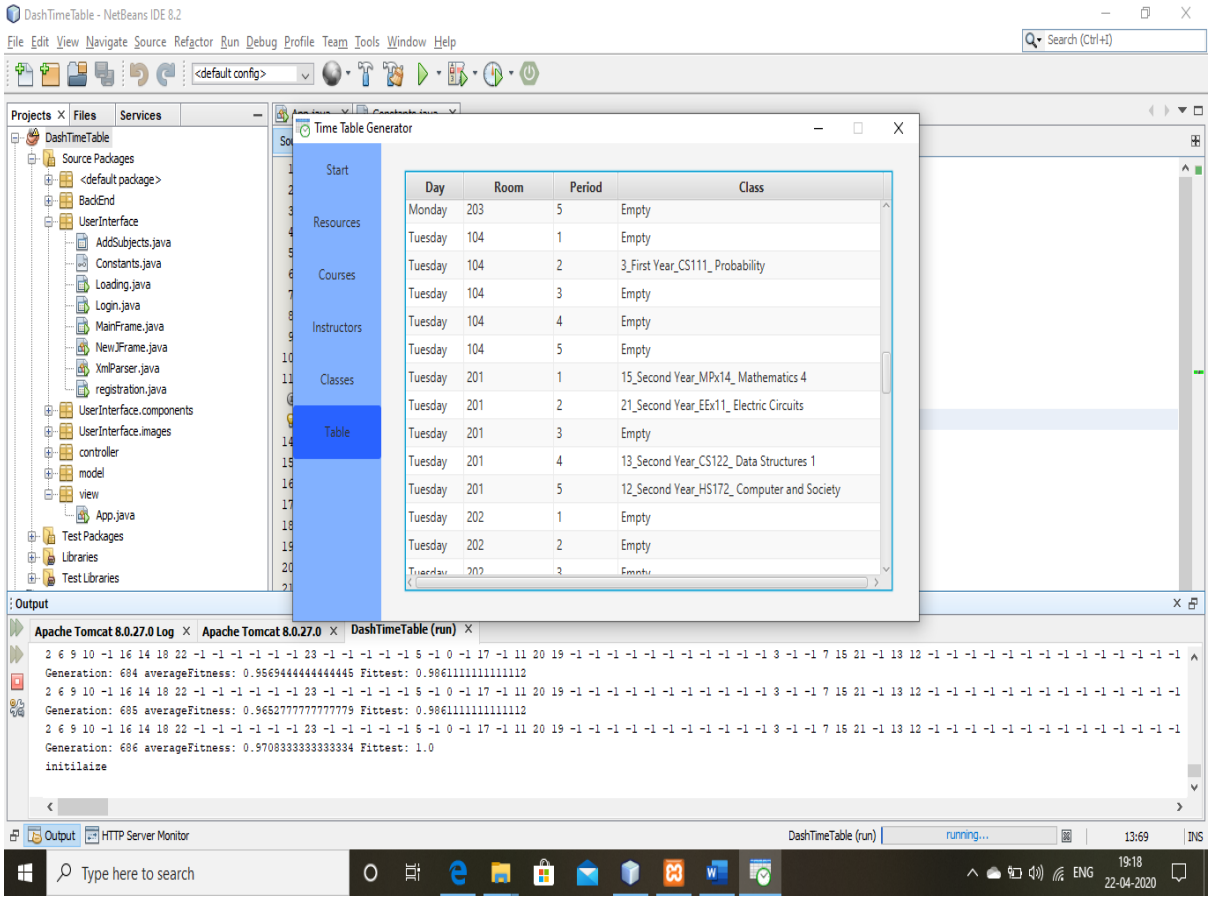
21. Adding two classes with id 22 and 23 as shown below

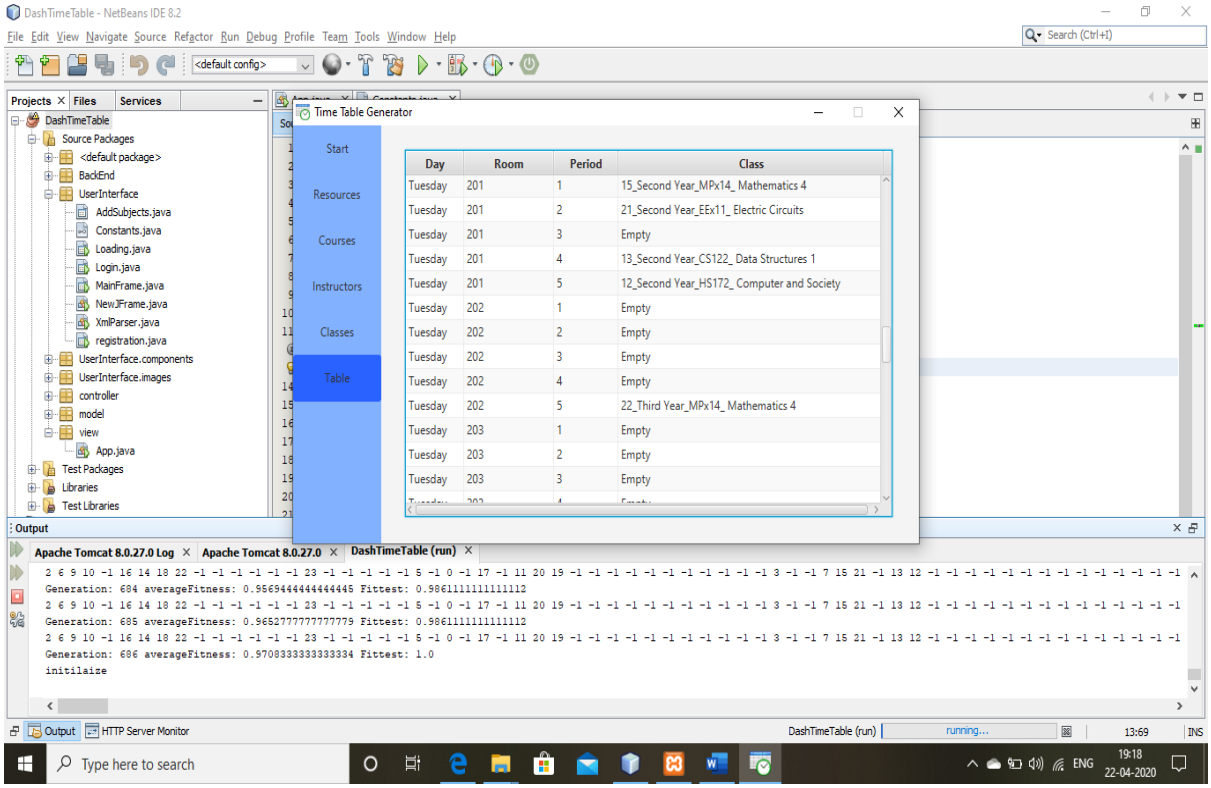


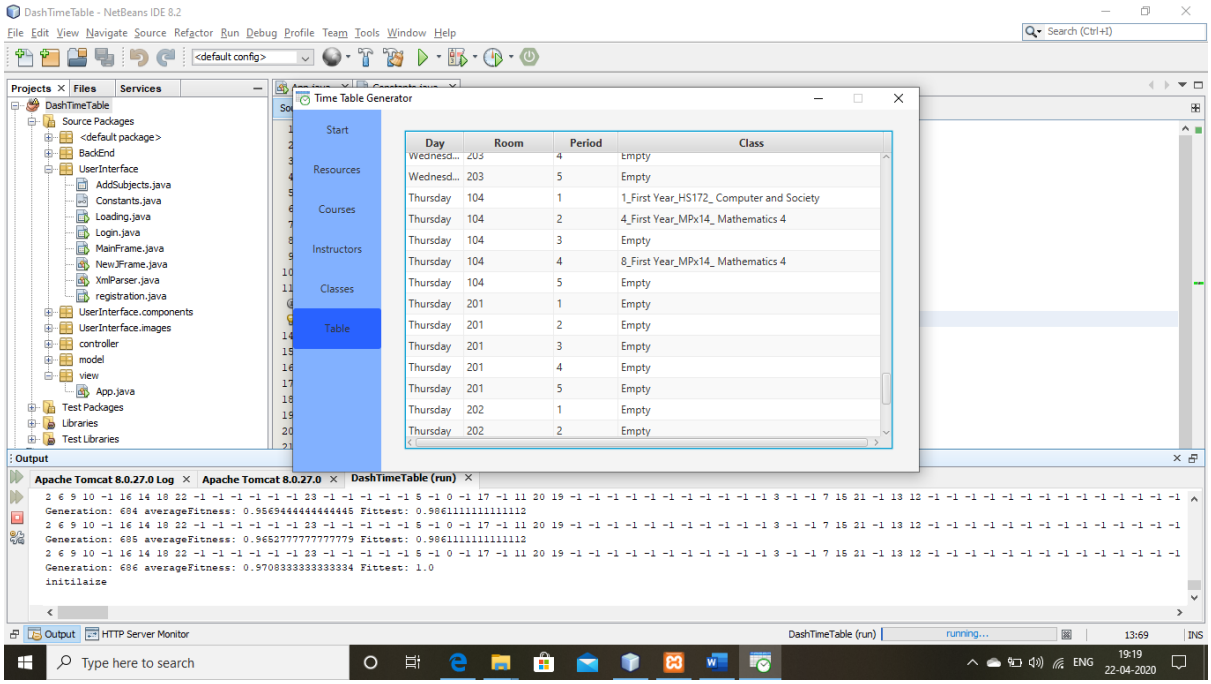
22. Following are screenshots of Generated time table with above given classes






DashTimeTable - NetBeans IDE 8.2
Time Table Generator
Start
Resources
Courses
Instructors
Classes
Table
Day Room Period Class
Monday 203 5 Empty
Tuesday 104 1 Empty
Tuesday 104 2 3_First Year_CS111_ Probability
Tuesday 104 3 Empty
Tuesday 104 4 Empty
Tuesday 104 5 Empty
Tuesday 201 1 15_Second Year_MPx14_ Mathematics 4
Tuesday 201 2 21_Second Year_EEx11_ Electric Circuits
Tuesday 201 3 Empty
Tuesday 201 4 13_Second Year_CS122_ Data Structures 1
Tuesday 201 5 12_Second Year_HS172_ Computer and Society
Tuesday 202 1 Empty
Tuesday 202 2 Empty
Generation: 684 averageFitness: 0.9569444444444445 Fittest: 0.9861111111111112
Generation: 685 averageFitness: 0.9652777777777779 Fittest: 0.9861111111111112
Generation: 686 averageFitness: 0.9708333333333334 Fittest: 1.0
initilaize


DashTimeTable - NetBeans IDE 8.2
Time Table Generator
Start
Resources
Courses
Instructors
Classes
Table
Day Room Period Class
Tuesday 201 1 15_Second Year_MPx14_ Mathematics 4
Tuesday 201 2 21_Second Year_EEx11_ Electric Circuits
Tuesday 201 3 Empty
Tuesday 201 4 13_Second Year_CS122_ Data Structures 1
Tuesday 201 5 12_Second Year_HS172_ Computer and Society
Tuesday 202 1 Empty
Tuesday 202 2 Empty
Tuesday 202 3 Empty
Tuesday 202 4 Empty
Tuesday 202 5 22_Third Year_MPx14_ Mathematics 4
Tuesday 203 1 Empty
Tuesday 203 2 Empty
Tuesday 203 3 Empty
Generation: 684 averageFitness: 0.9569444444444445 Fittest: 0.9861111111111112
Generation: 685 averageFitness: 0.9652777777777779 Fittest: 0.9861111111111112
Generation: 686 averageFitness: 0.9708333333333334 Fittest: 1.0
initilaize


DashTimeTable - NetBeans IDE 8.2
Time Table Generator
Start
Resources
Courses
Instructors
Classes
Table
Day
Room
Period
Class
Thursday 104 1 1_First Year_HS172_ Computer and Society
Thursday 104 2 4_First Year_MPx14_ Mathematics 4
Thursday 104 3 Empty
Thursday 104 4 8_First Year_MPx14_ Mathematics 4
Thursday 104 5 Empty
Thursday 201 1 Empty
Thursday 201 2 Empty
Thursday 201 3 Empty
Thursday 201 4 Empty
Thursday 201 5 Empty
Thursday 202 1 Empty
Thursday 202 2 Empty
Generation: 684 averageFitness: 0.9569444444444445 Fittest: 0.9861111111111112
Generation: 685 averageFitness: 0.9652777777777779 Fittest: 0.9861111111111112
Generation: 686 averageFitness: 0.9708333333333334 Fittest: 1.0
initilaize

Thank You