

Job Portal Application

Introduction

The job portal application mainly deals with the job application process, wherein a candidate seeking a job can search the job title of the position that they are looking for and can then choose the job id's from the list and apply for that specific position. The application consists of mainly two SOAP web services that have been deployed on glassfish server where coordination policy about the order of invocation about each operation is implemented. The two operations which are taken into considerations are getJobDetails and applyJob which are methods of web services deployed on the server. The JobPortal Application uses Oracle 11g for storing the database

Database Design:

The Database used for the application are oracle 11g which contains 4 tables for this application

1. Job
2. Candidate
3. Usersession
4. Applicationstatus

- The Job table contains the list of all the jobs where user can apply to
- The candidate table contains the details of the user/candidate stored in the database
- Usersession table keeps a track of session associated with the user
- Applicationstatus keeps a track of jobs applied by the user

Some valid userids are follows where candidateid is the userid

	CANDIDATEID	FIRSTNAME	LASTNAME	GPA	DEGREE	MAJOR	SKILLS	UNIVERSITY
1	101	Apurwa	Dandekar	3	master's	Computer Science	java, SQL, HTML	Rochester Institute Of Technology
2	102	John	Green	3	Master's	Electronix	C, C++	MIT
3	103	Nik	Boyse	4	PHD	IST	HTML,CSS	UTD
4	104	Wan	Ken	4	Master's	Computer Science	Java, C, C++	RIT
5	105	Bob	KLeen	2.8	Master's	Computer Science	Java, SQL, C...	SJSU
6	106	Neha	Patil	3.4	Bache...	IST	SQL	RIT
7	107	Jish	Kapoor	3.6	Master's	CS	Java, C#	HIT
8	108	rachel	Green	3.4	Master's	CS	C,C++	NYU
9	109	Ross	Green	3.9	PHD	Image Science	Matlab	RIT
10	110	Gosh	Hoss	2.8	Master's	IP	Java, ASP	UTD
11	111	will	son	3	Master's	Netwoek	HTIP, SMTP	RIT
12	112	Kish	Lee	3.9	Bache...	CE	C, Java, Python	RIT

And some jobs are as follows

	JOBID	DESCRIPT...	POSTEDON	MINGPA	DEGREE	SALARY	SKILLS	DEADLINE	LOCATION	TITLE
1	job101	6-12 mo...	14-MAR-16		3 Master's	25\$ hour	java	31-MAR-16	Rochest...	Softwar...
2	job102	John De...	17-MAR-16		3 Master's	20\$ hour	Java, SQL	31-MAY-16	New Yor...	Softwar...
3	jjob103	Some Job	24-MAR-16		3 Bachelor's	20\$	C, C++	31-MAR-16	Dallas, TX	Softwar...
4	job104	Ancestr...	20-MAR-16		3 Master's	25\$ hour	Java, SQL	31-MAY-16	Albany, NY	Softwar...
5	job105	The NAS...	23-MAR-16		3 Master's	30\$ hour	.Net, SQL	10-JUN-16	Riverda...	Softwar...
6	job106	Hulu is...	20-MAR-16		4 Master's	22\$ hour	Angular...	25-MAY-16	Seattle...	Softwar...
7	job121	Adobe i...	25-MAR-16		3 Bachelor's	28\$ hour	Spring,...	30-MAY-16	San Jos...	Softwar...
8	job107	Marvel ...	15-MAR-16		3 Master's	31\$ hour	Python,...	31-MAY-16	Burbank...	Softwar...
9	job109	Invoca ...	10-MAR-16		3 Master's	22\$ hour	Ruby, AWS	25-MAY-16	Sunnyva...	Softwar...
10	job110	GE is s...	20-MAR-16		3 Master's	28\$ hour	.Net, SQL	31-MAY-16	Atlanta...	Softwar...
11	job112	ATnull ...	20-MAR-16		3 Master's	35\$ hour	.Net, SQL	31-MAY-16	Santa B...	SQL Eng...
12	job113	Join Ai...	17-MAR-16		3 Master's	20\$ hour	XML, SQL	30-MAY-16	Baltimo...	SQL Dev...

UserSession table consists of userid and sessionid columns

	USERID	SESSIONID
1	101	2oopn80ne0k7crmklpd6j47aa5
2	101	lok56ahis5n7tdlq4c1qqdjaq3
3	222	cooa3s5abcosd6obiam0t5toqf
4	101	3nrkdr3fa4tlect4705r012oti
5	101	dd9urbso0529ekh498h3ssi8rg
6	101	i875g2nrcvi985995q627uaabe
7	101	5pvuhk6tpj1sqne7v8b31v0jui
8	101	2sgu6pkt9o9dbdcblv8dl07n6q
9	101	5f1cj440qo56o0ta2ukgms3kaa
10	101	mep3pirijgoq7trf4bi47nor3d
11	101	ulg1rt42m8bcd9ranrhu052fb5
12	101	p0tcaoddhnqn07lkt0s3taubrf
13	102	j829tpb9b922bei8oh86i235lp
14	103	4930qra7o4lsf3a3bafdcgeg26e

ApplicationStatus table consists userid and jobid columns

	USERID	JOBID
1	102	job104
2	102	job114
3	102	job102
4	101	job101
5	101	job102

Functionalities and Design:

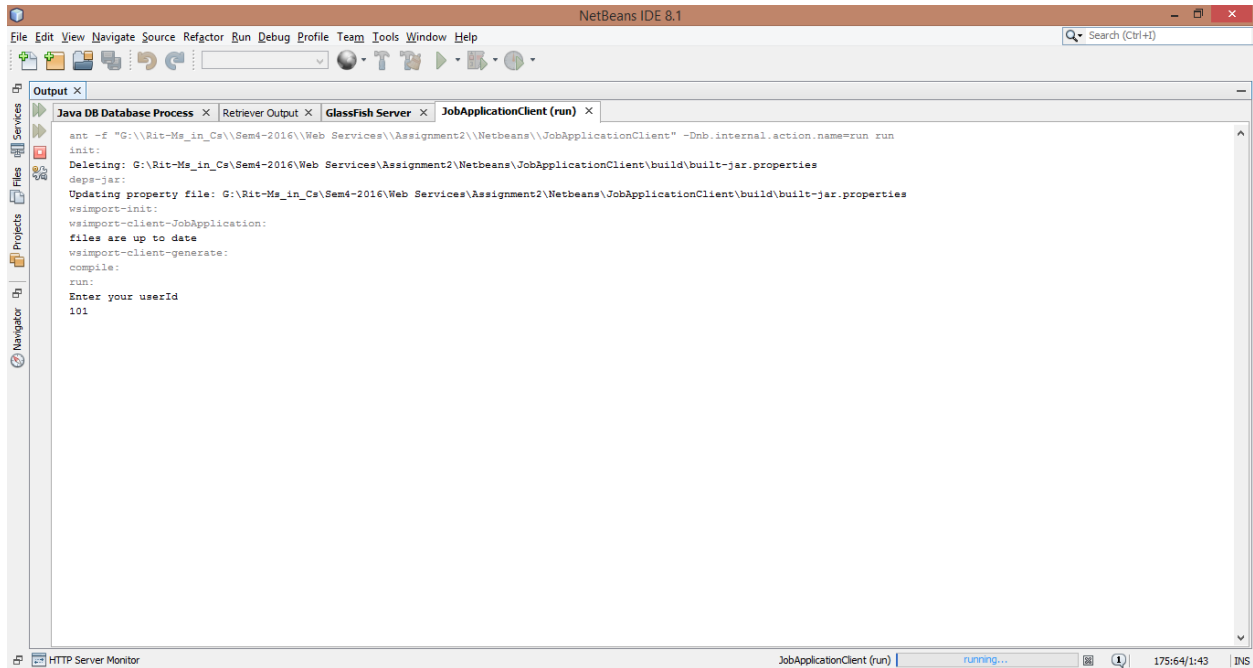
1. When the JobApplication Client starts, it asks the user to input their userid
2. When the client enters the userid, it asks three menu options to the user and these are as follows
 - a. Choose from the following:
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quits
3. If the user chooses option 1, the application then asks the user to enter the job title
'Enter the Job Title to search'
4. User then enters the job title such as "Software Engineer"
5. The web service request is sent to the server with the jobtitle and userid (the name of the webservice is **getJobDetails**)
6. At the client side message handler session id is created for that session which is unique it is embedded into the header with userid
7. The Server returns the list of jobs to the client with valid jobids wherein all the details about the job including the description are populated at client side
8. The application then asks the user to choose from the above mentioned options. If the user chooses option 2, it then asks the user to enter a valid jobid from the list
9. If the user enters the jobid a request is sent to the server with the job id and userid to apply for that job.(the method used is applyJob) If the user has not previously applied for the jobid then entry is updated into the database table APPLICATIONSTATUS with userid and jobid and if the user has already applied for that position then an appropriate message is sent from the server about the status
10. The application further takes care of the order of invocation of these operations with the help of message handler protocol i.e. user first has to invoke first operation e.g. search jobs and only then will they be able to apply for the jobid they entered as an input. Else soapfaultexception is thrown from the server side and the client is notified about this fault
11. This functionality has been handled in the following way
 - a. When a user enters the userid and selects operation 1 i.e. SearchJobs then sessionid is created at the client handler and embedded to the soap header with userid
 - b. This soap message is then fetched at the server side handler and it then extracts the userid , sessionid and operation name. If the operation name is (getJobDetails) and the session is new then entry is made into the database with userid and session id
 - c. This will help to keep track of the order of execution of these two operations
 - d. In the new session, if the operation 2 i.e. applyJob is called before calling getJobDetails then no entry will be made into the database to save userid and sessionid. However it will check the database to see whether the sessionid and username present in the soap header exists in the database
 - e. In the above case since there won't be any entry in the database for current sessionid and userid the handler at the server side won't allow user to apply for the jobid.

Furthermore the user will also get an error stating that “**Order of the operations has been violated**”

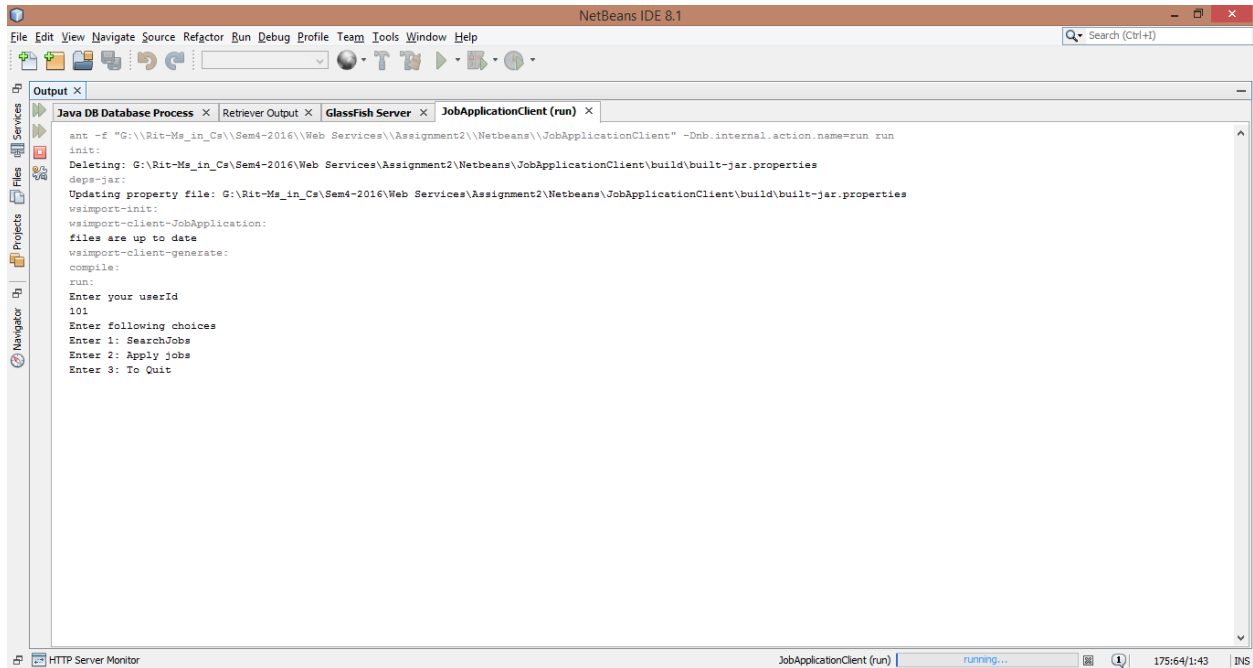
12. The jobportal application also handles the issue wherein the order of invocation is maintained but the user wants to apply for the job that were not part of the getJobDetails() results. In this case user gets a message stating “Job id does not exist in the search results”
13. Also when the user is applying for the same jobid which they had applied for in the past, then error message is shown to the user stating “You have applied for this job”. This is taken care by checking the entry for that user in the database for the selected jobid
14. MinGPA and Degree Requirements: When the user enters the jobid to apply for the job the candidate’s profiles for minimum requirements of gpa and degree i.e minimum requirements of gpa and degree for the Jobid are checked for that candidate if these requirements are not met then the error message is returned to the client
15. When the user enters the userid it won’t be checked into the database for the search operation i.e. user can able to search the jobs for the title without having appropriate id but while applying for that job the userid is checked into the candidate table for valid user if the user id is not present in the database invalid candidate id message is thrown at the client side.

Screen Shots of the Running Application:

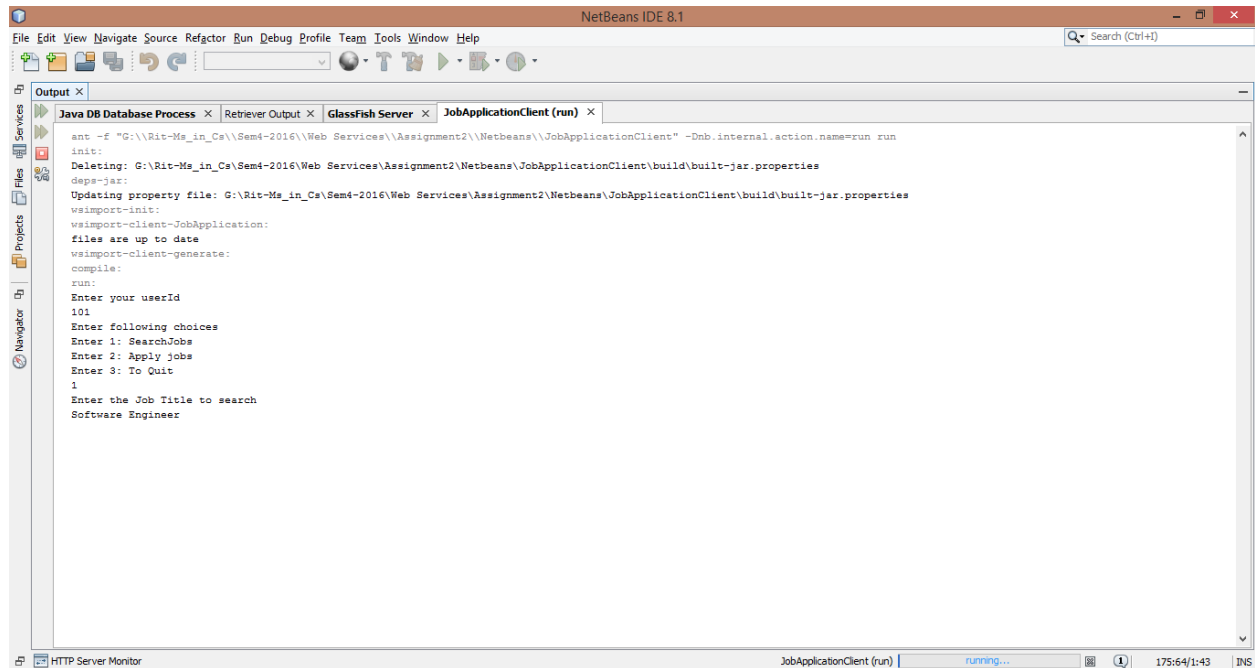
When the client JobApplicationClient is run the application asks the user to enter the userid



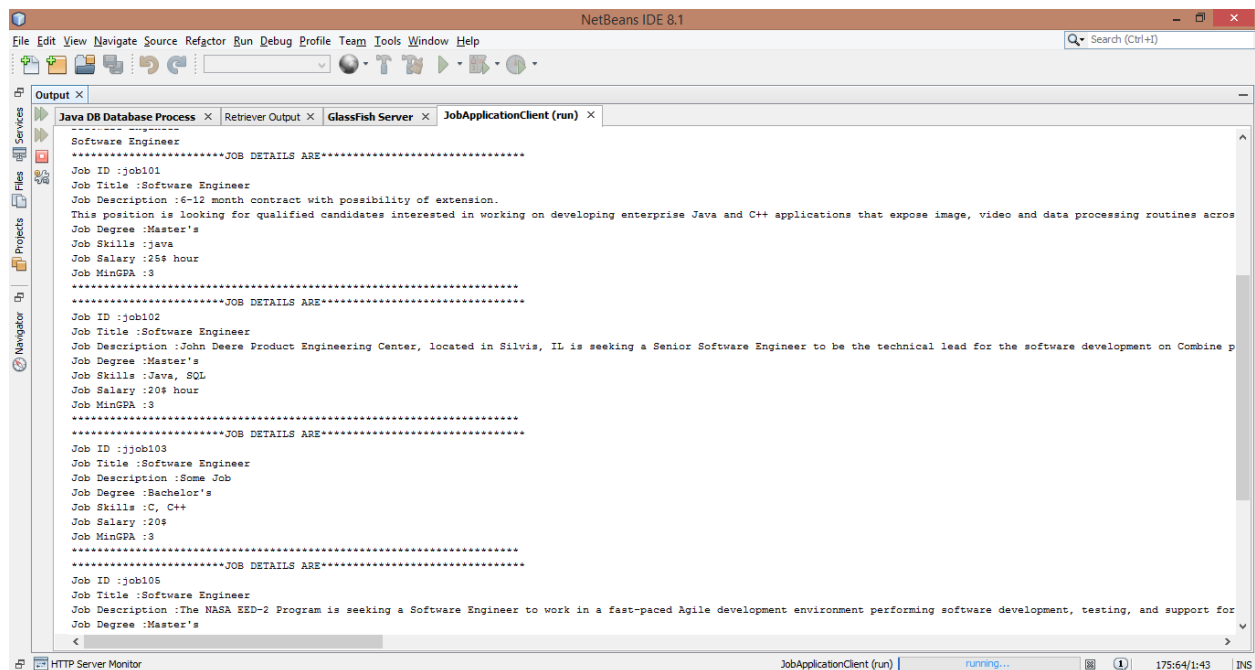
User gets options to perform various operations



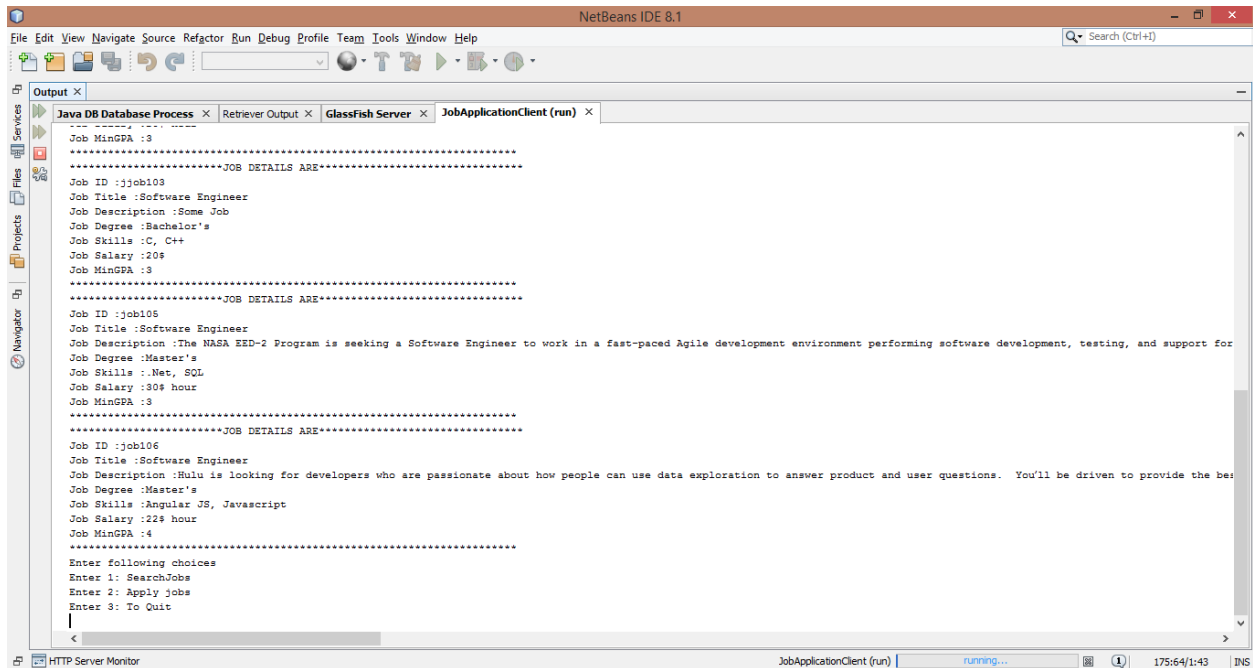
User selects option 1 i.e. to search Jobs then the user is asked to enter the job title. He enters “Software Engineer”



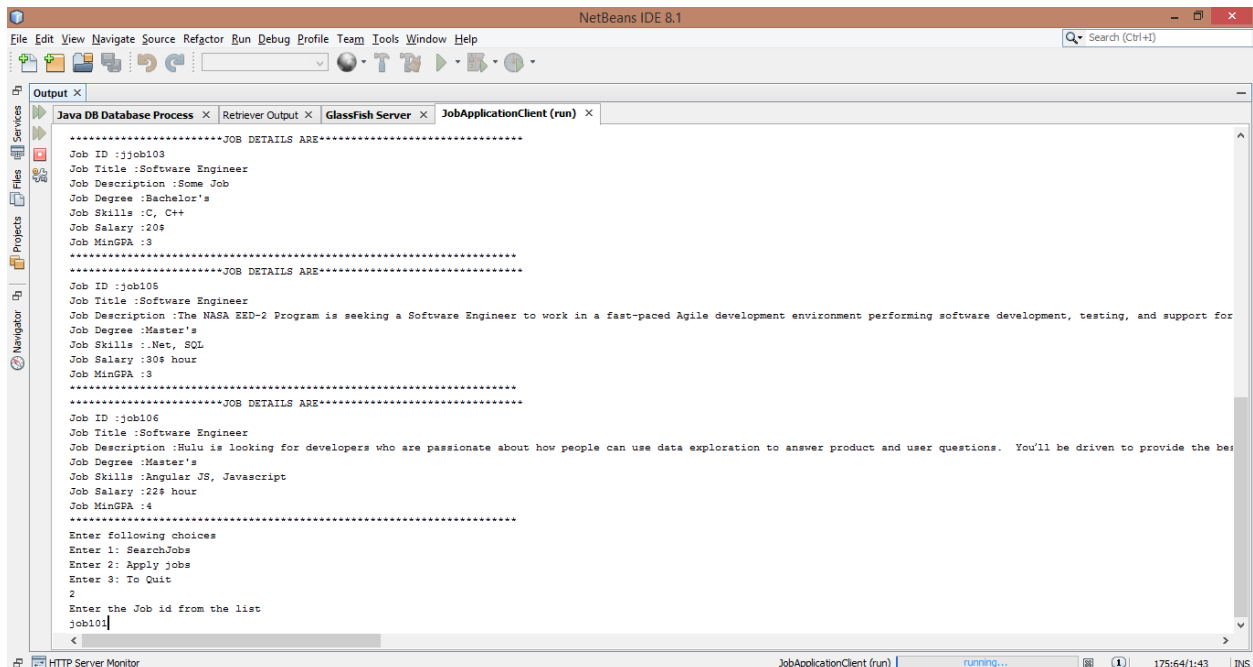
User gets a list of results for the job title, with the details of the job such as jobid, jobtitle, job Description, job skills, min GPA requirements , Degree required etc.



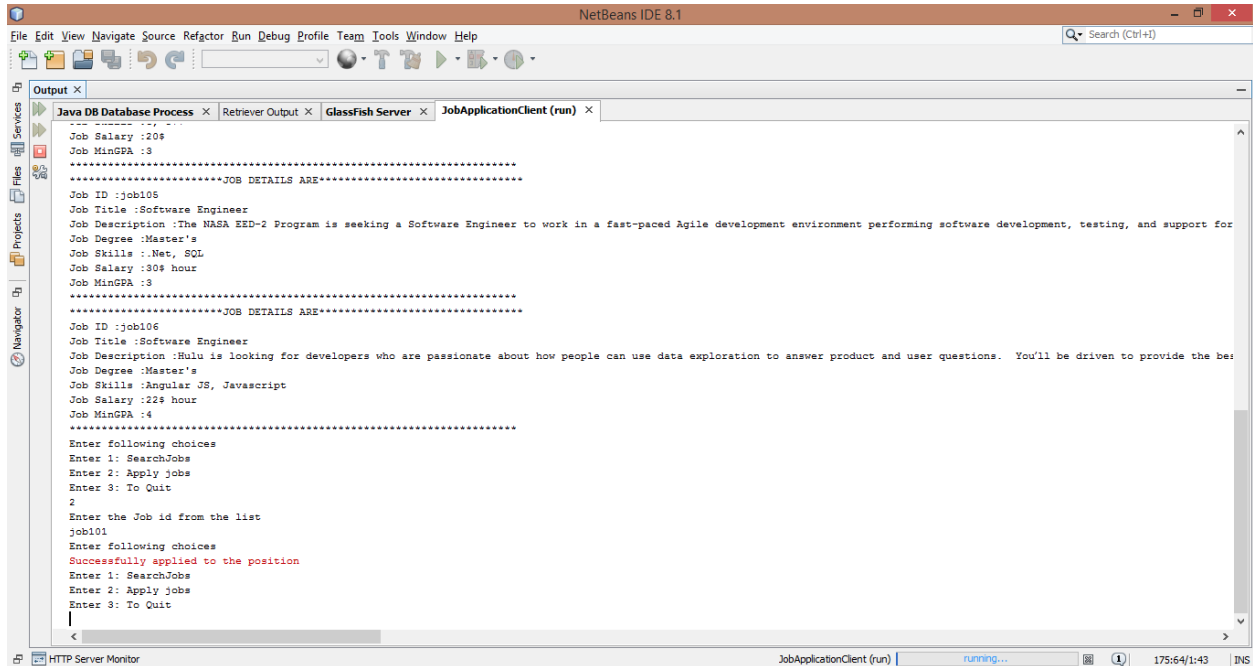
Application again asks the user for next selection of operation



If the user enters 2 then the application asks the user to enter the jobid from the above given list consider the user enters job101 as an input



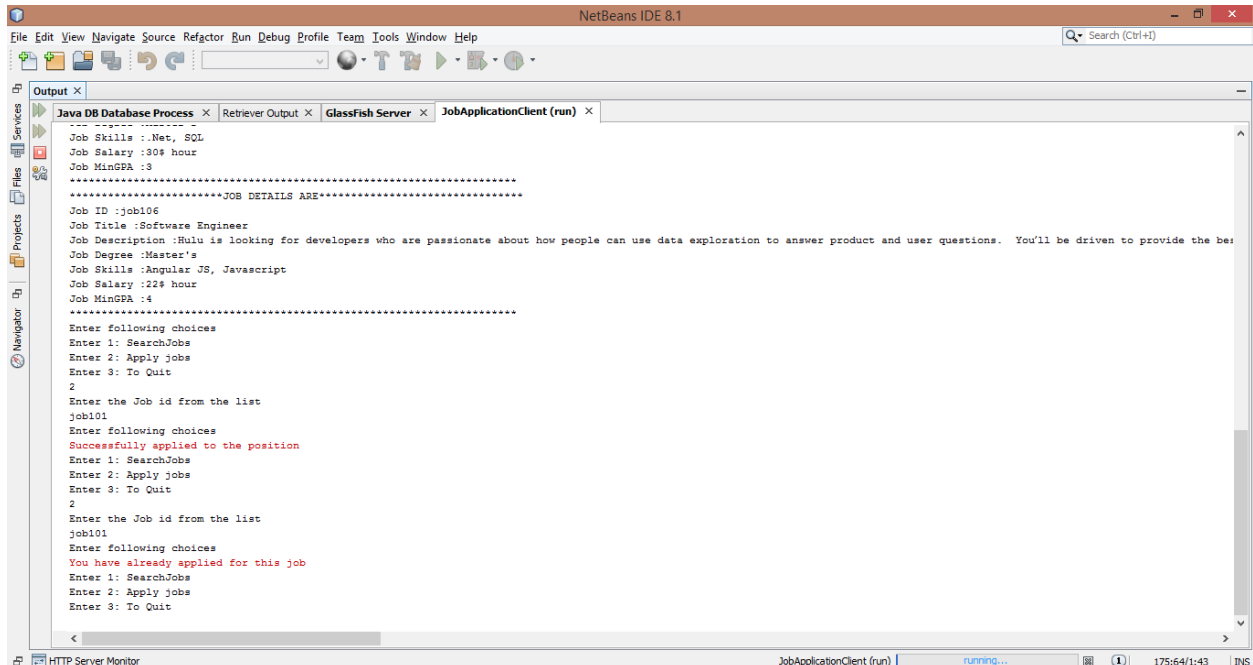
User gets a message as follows and the database table application status is updated with userid and jobid



```
NetBeans IDE 8.1
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Search (Ctrl+I)

Output x
Java DB Database Process x Retriever Output x GlassFish Server x JobApplicationClient (run) x
-----
Job Salary :20$
Job MinGPA :3
*****JOB DETAILS ARE*****
Job ID :job105
Job Title :Software Engineer
Job Description :The NASA EED-2 Program is seeking a Software Engineer to work in a fast-paced Agile development environment performing software development, testing, and support for
Job Degree :Master's
Job Skills :.Net, SQL
Job Salary :30$ hour
Job MinGPA :3
*****JOB DETAILS ARE*****
Job ID :job106
Job Title :Software Engineer
Job Description :Hulu is looking for developers who are passionate about how people can use data exploration to answer product and user questions. You'll be driven to provide the be
Job Degree :Master's
Job Skills :Angular JS, Javascript
Job Salary :22$ hour
Job MinGPA :4
*****
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job101
Enter following choices
Successfully applied to the position
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
1
-----
HTTP Server Monitor JobApplicationClient (run) running... 175:64/1:43 INS
```

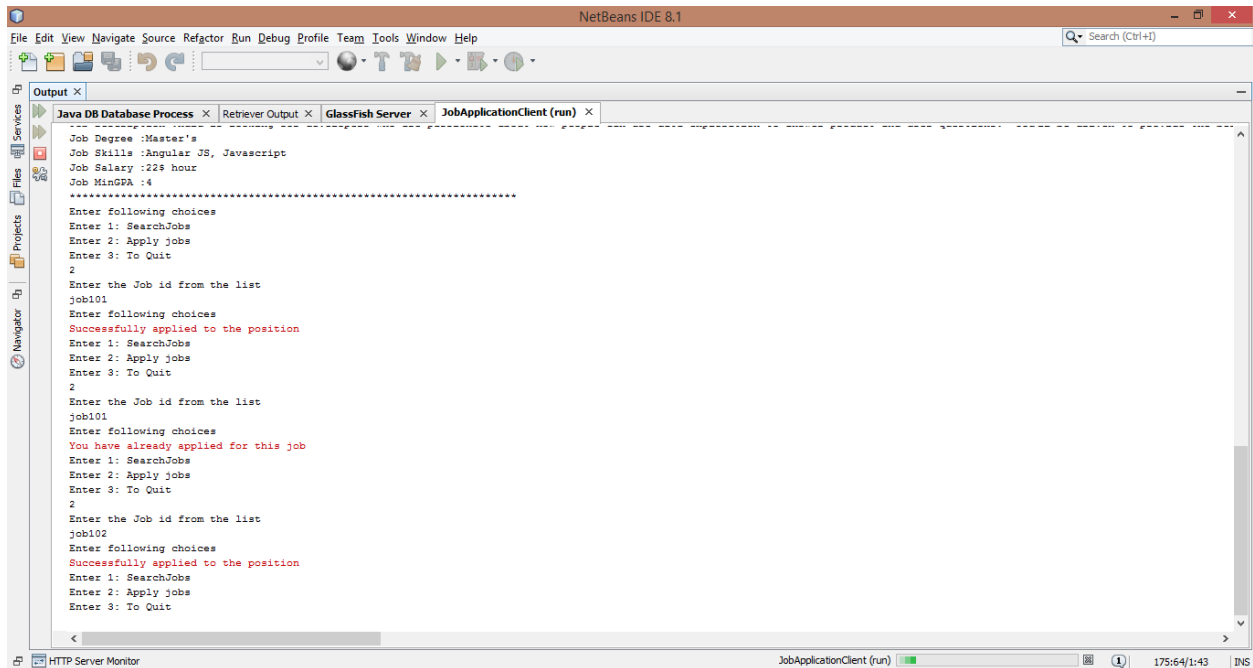
But if the user again tries to apply for the samejob id then application throws an error as follows



```
NetBeans IDE 8.1
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Search (Ctrl+I)

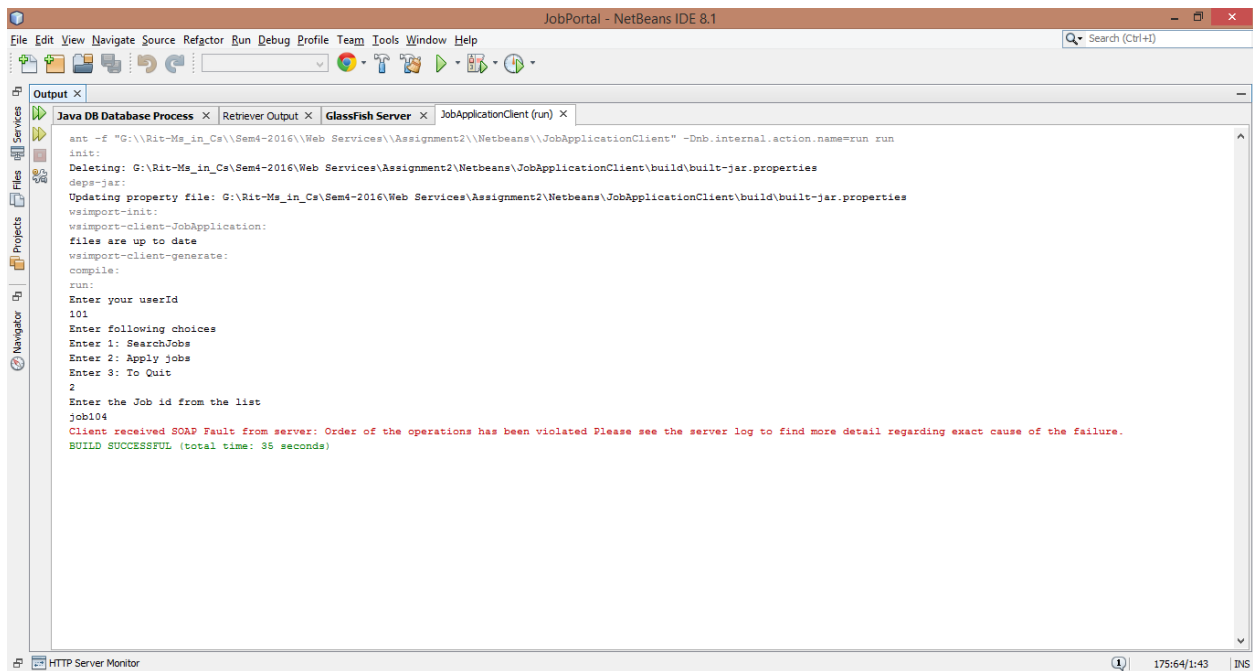
Output x
Java DB Database Process x Retriever Output x GlassFish Server x JobApplicationClient (run) x
-----
Job Skills :.Net, SQL
Job Salary :30$ hour
Job MinGPA :3
*****JOB DETAILS ARE*****
Job ID :job106
Job Title :Software Engineer
Job Description :Hulu is looking for developers who are passionate about how people can use data exploration to answer product and user questions. You'll be driven to provide the be
Job Degree :Master's
Job Skills :Angular JS, Javascript
Job Salary :22$ hour
Job MinGPA :4
*****
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job101
Enter following choices
Successfully applied to the position
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job101
Enter following choices
You have already applied for this job
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
1
-----
HTTP Server Monitor JobApplicationClient (run) running... 175:64/1:43 INS
```


But he can apply for another job from the list

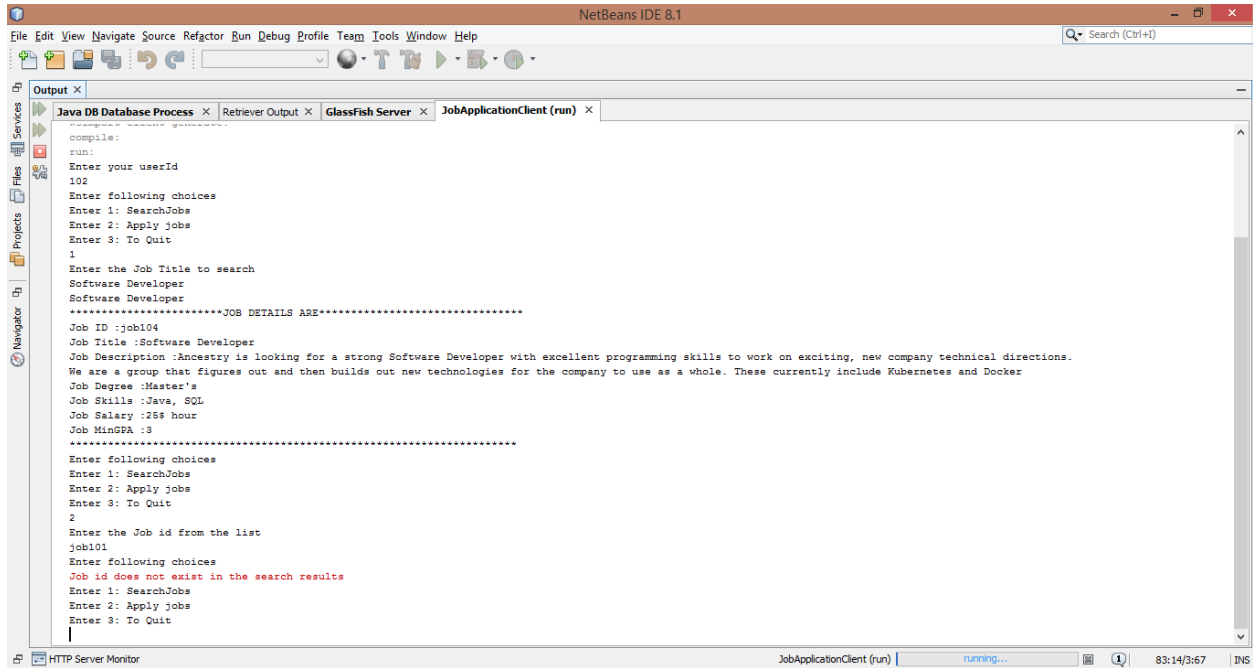


Order Of invocation handler

Consider there is a new session for the user and user enters userid and then selects operation2 ieapplyJobs in this case the application throws an error as follows,



If the user wants to apply for the jobid which were not results of the search operation the error is shown to the user to select the jobid from the list as follows,

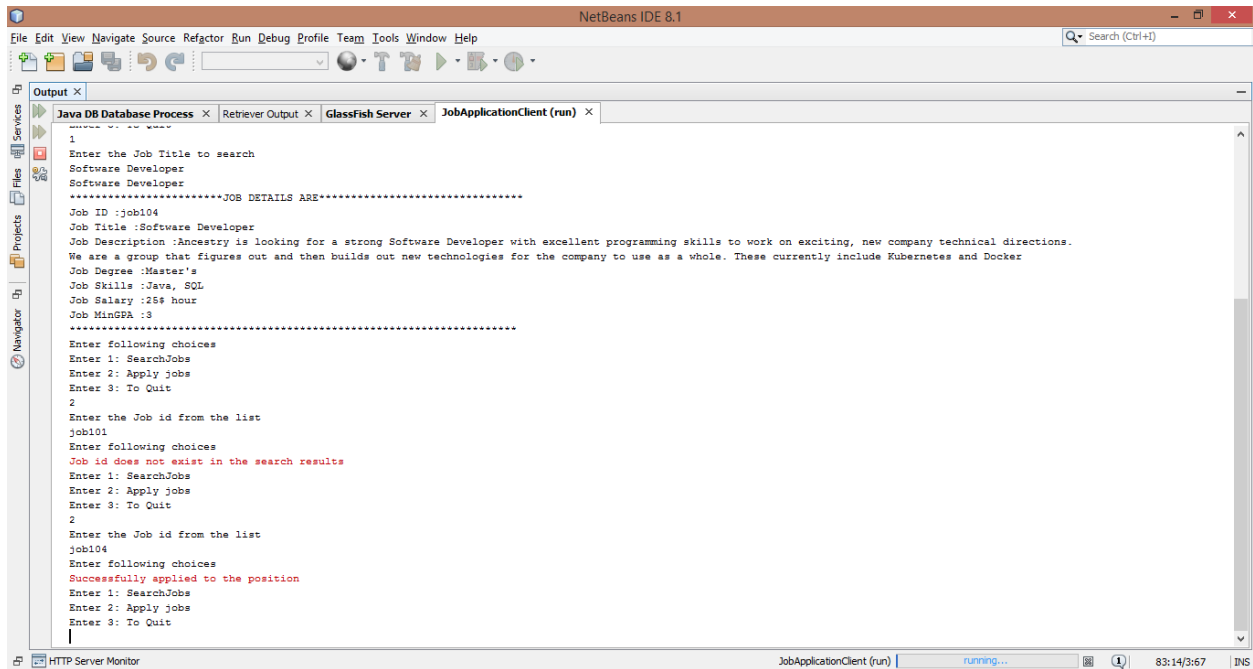


```
NetBeans IDE 8.1
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Search (Ctrl+F)

Output
Java DB Database Process x Retriever Output x GlassFish Server x JobApplicationClient (run) x
compile:
run:
Enter your userId
102
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
1
Enter the Job Title to search
Software Developer
Software Developer
*****JOB DETAILS ARE*****
Job ID :job104
Job Title :Software Developer
Job Description :Ancestry is looking for a strong Software Developer with excellent programming skills to work on exciting, new company technical directions.
We are a group that figures out and then builds out new technologies for the company to use as a whole. These currently include Kubernetes and Docker
Job Degree :Master's
Job Skills :Java, SQL
Job Salary :25$ hour
Job MinGPA :3
*****
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job101
Enter following choices
Job id does not exist in the search results
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
|

HTTP Server Monitor
JobApplicationClient (run) running... 83:14/3:67 INS
```

But if the user selcts the jobid from the list then successful message is returned

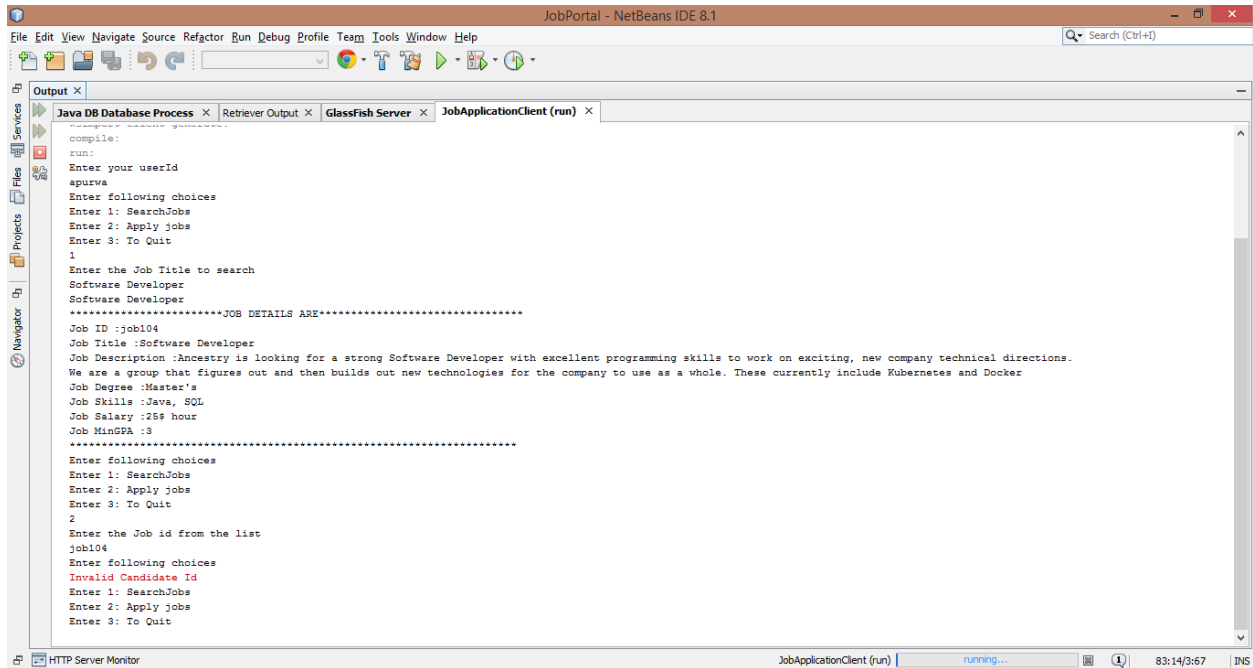


```
NetBeans IDE 8.1
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Search (Ctrl+F)

Output
Java DB Database Process x Retriever Output x GlassFish Server x JobApplicationClient (run) x
1
Enter the Job Title to search
Software Developer
Software Developer
*****JOB DETAILS ARE*****
Job ID :job104
Job Title :Software Developer
Job Description :Ancestry is looking for a strong Software Developer with excellent programming skills to work on exciting, new company technical directions.
We are a group that figures out and then builds out new technologies for the company to use as a whole. These currently include Kubernetes and Docker
Job Degree :Master's
Job Skills :Java, SQL
Job Salary :25$ hour
Job MinGPA :3
*****
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job101
Enter following choices
Job id does not exist in the search results
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job104
Enter following choices
Successfully applied to the position
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
|

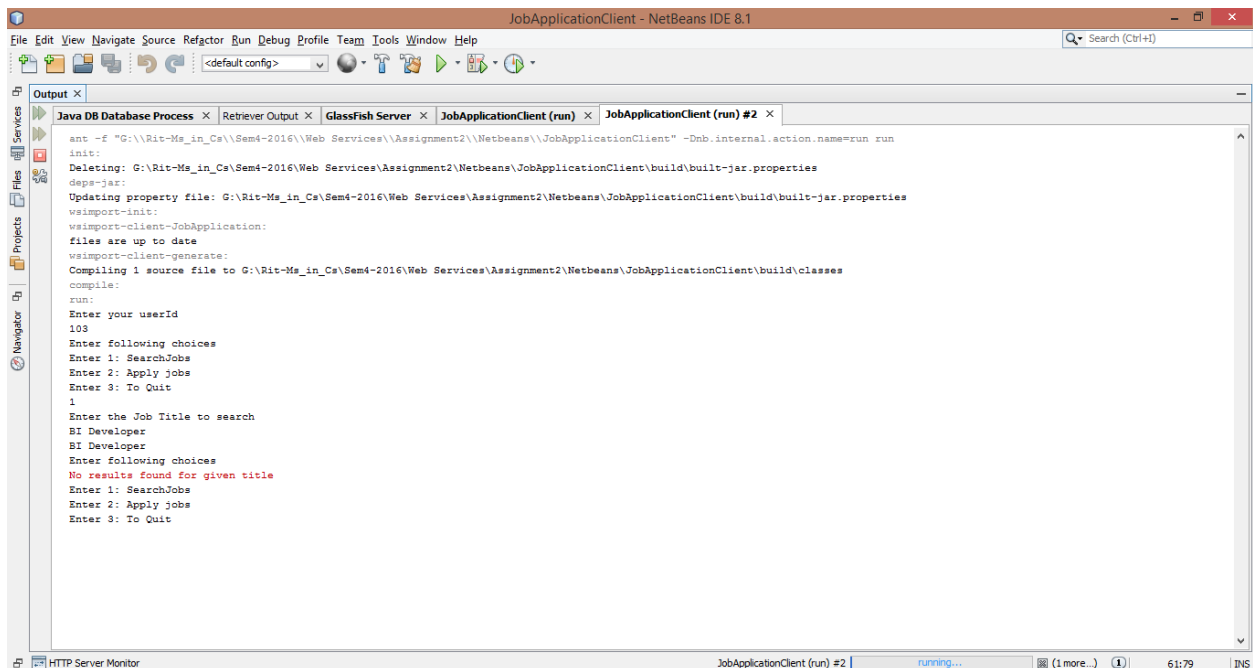
HTTP Server Monitor
JobApplicationClient (run) running... 83:14/3:67 INS
```

If the user enters invalid username which is not present in the database table candidate the no entries are checked into the database for valid userid the results are shown to him for the search results but he won't be able to apply for the position



```
JobPortal - NetBeans IDE 8.1
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Output
Java DB Database Process x Retriever Output x GlassFish Server x JobApplicationClient (run) x
compile:
run:
Enter your userId
apurva
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
1
Enter the Job Title to search
Software Developer
Software Developer
*****JOB DETAILS ARE*****
Job ID :job104
Job Title :Software Developer
Job Description :Ancestry is looking for a strong Software Developer with excellent programming skills to work on exciting, new company technical directions.
We are a group that figures out and then builds out new technologies for the company to use as a whole. These currently include Kubernetes and Docker
Job Degree :Master's
Job Skills :Java, SQL
Job Salary :25$ hour
Job MinDPA :3
*****
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job104
Enter following choices
Invalid Candidate Id
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
HTTP Server Monitor JobApplicationClient (run) running... 83:14/3:67 INS
```

If the there is no entry found in the database table JOBS for user input query then user gets an error message



```
JobApplicationClient - NetBeans IDE 8.1
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Output
Java DB Database Process x Retriever Output x GlassFish Server x JobApplicationClient (run) x JobApplicationClient (run) #2 x
ant -f "G:\Rit-Ms_in_Cs\Sem4-2016\Web Services\Assignment2\Netbeans\JobApplicationClient" -Dnb.internal.action.name=run run
init:
Deleting: G:\Rit-Ms_in_Cs\Sem4-2016\Web Services\Assignment2\Netbeans\JobApplicationClient\build\build-jar.properties
deps-jar:
Updating property file: G:\Rit-Ms_in_Cs\Sem4-2016\Web Services\Assignment2\Netbeans\JobApplicationClient\build\build-jar.properties
wsimport-init:
wsimport-client-JobApplication:
files are up to date
wsimport-client-generate:
Compiling 1 source file to G:\Rit-Ms_in_Cs\Sem4-2016\Web Services\Assignment2\Netbeans\JobApplicationClient\build\classes
compile:
run:
Enter your userId
103
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
1
Enter the Job Title to search
BI Developer
Enter following choices
No results found for given title
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
HTTP Server Monitor JobApplicationClient (run) #2 running... (1 more...) 61:79 INS
```

If the GPA requirements are not met by the candidate profile consider candidateid 105

	CANDIDATEID	FIRSTNAME	LASTNAME	GPA	DEGREE	MAJOR	SKILLS	UNIVERSITY
1	101	Apurwa	Dandekar	3	master's	Computer Science	java, SQL, HTML	Rochester Institute Of Technology
2	102	John	Green	3	Master's	Electronix	C, C++	MIT
3	103	Nik	Boyse	4	PHD	IST	HTML,CSS	UTD
4	104	Wan	Ken	4	Master's	Computer Science	Java, C, C++	RIT
5	105	Bob	KLeen	2.8	Master's	Computer Science	Java, SQL, C...	SJSU
6	106	Neha	Patil	3.4	Bache...	IST	SQL	RIT
7	107	Jish	Kapoor	3.6	Master's	CS	Java, C#	HIT
8	108	rachel	Green	3.4	Master's	CS	C,C++	NYU
9	109	Ross	Green	3.9	PHD	Image Science	Matlab	RIT
10	110	Gosh	Hoss	2.8	Master's	IP	Java, ASP	UTD
11	111	will	son	3	Master's	Netwoek	HTTP, SMTP	RIT
12	112	Kish	Lee	3.9	Bache...	CE	C, Java, Python	RIT

The error is as follows for job106 whose min gpa requirements are 4

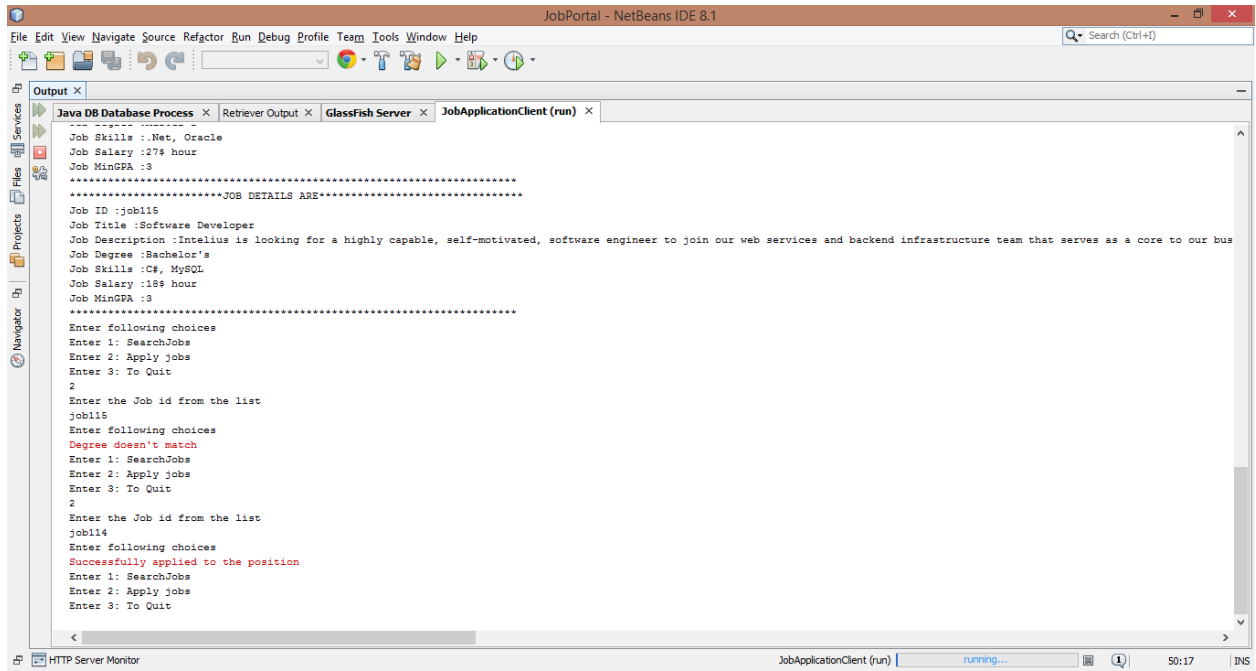
```

NetBeans IDE 8.1
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Q Search (Ctrl+I)

Output
Java DB Database Process x Retriever Output x GlassFish Server x JobApplicationClient (run) #2 x
Job Salary :10$
Job MinGPA :3
*****JOB DETAILS ARE*****
Job ID :job105
Job Title :Software Engineer
Job Description :The NASA EED-2 Program is seeking a Software Engineer to work in a fast-paced Agile development environment performing software development, testing, and support for
Job Degree :Master's
Job Skills :.Net, SQL
Job Salary :30$ hour
Job MinGPA :3
*****JOB DETAILS ARE*****
Job ID :job106
Job Title :Software Engineer
Job Description :Hulu is looking for developers who are passionate about how people can use data exploration to answer product and user questions. You'll be driven to provide the be
Job Degree :Master's
Job Skills :Angular JS, Javascript
Job Salary :22$ hour
Job MinGPA :4
*****
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job106
Enter following choices
Gpa requirements don't match
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
|
<
HTTP Server Monitor JobApplicationClient (run) #2 running... (1 more...) 1 33:3 INS

```

If the degrees don't match with the requirement



```
JobSkills : .Net, Oracle
JobSalary : 27$ hour
JobMinGPA : 3
*****JOB DETAILS ARE*****
JobID : job115
JobTitle : Software Developer
JobDescription : Intellius is looking for a highly capable, self-motivated, software engineer to join our web services and backend infrastructure team that serves as a core to our bus
JobDegree : Bachelor's
JobSkills : C#, MySQL
JobSalary : 18$ hour
JobMinGPA : 3
*****
Enter following choices
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job115
Enter following choices
Degree doesn't match
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
2
Enter the Job id from the list
job114
Enter following choices
Successfully applied to the position
Enter 1: SearchJobs
Enter 2: Apply jobs
Enter 3: To Quit
```