

Configuration Manual

MSc Research Project Cloud Computing

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Configuration Manual

Niketan Bothe 20180837

1 Overview

In this manual each and every step is shown for project configuration. All the code is available in zip file which include Frontend, backend setup code. Overall backend software is installed on cloud server(AWS EC2). In this report there is configuration for both the first section will explain about the developer configuration in which explain each and every step of code setup. The another section is all about execution of application setup. Lets look into it.

2 Installation Requirement

This application can be implement on basic requirement which shown in below table 1

Component	Requirement
OS	Windows10/11
CPU	8
RAM	8GB
Storage	100GB

Table 1: System Requirement

3 FrontEnd Implimentation

Front end is developed in Apache NetBeans 15 IDE by visiting https://archive. apache.org/dist/netbeans/netbeans-installers/15/Apache-NetBeans-15-bin-windows-x64. exe.

- Install the downloaded software in windows with following steps
 - 1. installation window 1

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	Welcome to the Apache NetBeans IDE 15 Installer	
	The installer will install the NetBeans IDE with the following packs and runti Click Customize to select the packs and runtimes to install.	mes.
	Base IDE Javo SE HTML5/JavoScript HTML5/JavoScript	
NetBeans IDE	Customize	Installation Size: 791.4 MB
	[cancel

Figure 1: Installation window .

2. finish the installation and there is a welcome window 2

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Figure 2: Welcome Window

3. click on file and open the project which is available in code zip. Filename-NiketanDesktop.3 4



Figure 3: Open Project

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Figure 4: Select Project

4. For API configuration click on source packages - transaction - Constants.java 5.current server ip is serverip = "http://3.250.130.15:8080 on line 23 specify the server public IP for eg., if your server Ip is 4.253.130.15

File Edit View Navigate Source	ce Refactor Ru	n Debug Profile Team Tools	Window Help	Nike	tanDesktop - Apache N	letBeans IDE 15	q	Search (Ctrl+I)	-	٥	×
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II : long	Search Results	Output - NiketanDesktop (run) ×									_

Figure 5: Configuration API

/DedupServer/" change it with serverip = "http://4.253.130.15/DedupServer/";

5. now go to file source packages - ui - Login.java right click on it and click on run file.67

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Figure 6: Run File

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User Name:			
Password:			
	Login R c	eset	
	Click Here To Register		
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Figure 7: Login Screen

- 6. Now Download JDK in local machine https://www.oracle.com/ie/java/ technologies/javase/jdk12-archive-downloads.html#license-lightbox
- 7. Install the JDK 8



Figure 8: Install

- 8. select path where to install JDK 9 $\,$
- 9. Install the JDK 8
- 10. Now Check whether jdk is installed or not so just go in CMD terminal and hit command "JAVAC", it will display all the packages and instructions related to java.10



Figure 9: Installation path



Figure 10: JDK Version

4 Cloud configuration

All the backend configuration is done at AWS EC2 instance on windows Server In this section will go through EC2 instance configuration. for better understanding can also visit *Step 1: Launch a Windows Server Amazon EC2 instance - AWS CodeDeploy — docs.aws.amazon.com* (n.d.)

1. Login into AWS Console, On the home page in services there is EC2 option click on it.11



Figure 11: AWS Console Window

2. Now this time create the instance by clicking on "Launch Instance".12

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Figure 12: Create Instance .

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Figure 13: Instance Configuration .

- 3. There is configuration page for configuration,13
 - give the instance name,
 - In application and OS image select Windows server
 - In Instance Type Select any tier(For this implementation there is t2.2xLarge tier is used).
 - Create the Key-pair by click on create pair option with selected option shown in 14. Keep the .pem file in safe place which can be use for instance login.

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	C ED25519 ED25519 encrypted private and pa	blic key pair (Not supported for Windows instances)			
	Per use with opential				
	For use with PuTTY				
		Cancel Create key pair			

Figure 14: Create Key Pair

• In firewall setting check "Allow HTTPS traffic from the internet" and "Allow HTTP traffic from the internet".

• Configuration Storage Provide atlest 100GB and Launch instance. It will take few minutes to get setup. Meanwhile click on instance ID15.

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• There is instance Configuration which is requested in above step now click on "Security".16

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New EC2 ×	EC2 > Instances > i-06be6d9d7ac7517d2		
Tell us what you think	Instance summary for i-06be6d9d7ac7517d2 (niketan_201	80837) tofo	C Connect Instance state V Actions V
EC2 Dashboard	Updated less than a minute ago		
EC2 Global View	Instance ID	Public IPv4 address	Private IPv4 addresses
Events	i-06be6d9d7ac7517d2 (niketan_20180837)	3.250.130.15 open address 2	D 172.31.45.200
Tags	IPv6 address	Instance state	Public IPv4 DNS
Limits	-	Running	ec2-3-250-130-15.eu-west-1.compute.amazonaws.com open address 2
• Instances	Hostname type IP name: ip-172-31-45-200.eu-west-1.compute.internal	Private IP DNS name (IPv4 only) p172-31-45-200.eu-west-1.compute.internal	
Instances New	Answer private resource DNS name	Instance type	Flastic IP addresses
Instance Types	IPv4 (A)	t2.2xlarge	-
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Spot Requests	3.250.130.15 [Public IP]	🗇 vpc-0c735787e36a3c094 🖸	•
Savings Plans			User: am:aws:sts::250738637992:assumed-role/AWSReservedSSO_MSCCLOUD_
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Dedicated Hosts			d policy allows the compute-optimizer:GetEnrollmentStatus action
Scheduled Instances			Retry
Capacity Reservations	IAM Role	Subnet ID	Auto Scaling Group name
Imager	-	subnet-065588da7b835f2b9 2	-
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AMI Catalog	▼ Security details		
F Elastic Block Store	IAM Role	Owner ID	Launch time
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Lifecycle Manager	sg-015a8e91b7e5f5cf3 (launch-wizard-732)		
• Network & Security	▼ Inbound rules		
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Figure 16: Security Group .

- Now click on security Group "sg-015a8e91b7e5f5cf3" to add the rules.
- There is inbound rule, select Edit rule17

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	- sor-09e85436s	ceaf95f7 IPv4 HT	гр тср	80	0.0.0/0	-



• select port range option and put "8080" with search option keep "0.0.0.0/0" then click on save rules. 18 This inbound rule will open the port request for 8080 where we are going to run tomcat server on AWS.

aws iii Services Q Search		[Alt+S]				እ 수 ⑦ Ireland ▼	MSCCLOUD/x20180837@student.ncirl.ie 🔻
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indunit rates cand of the incoming dame theta-	anowed to reach the instance.						
Inbound rules Info							
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					0.0.0/0 X		
sgr-08ec16be9b6803ae9	Custom TCP 💌	ТСР	8080	Custom 🔻	Q		Delete
					0.0.0.0/0 X		
sgr-09e85436aceaf95f7	HTTP V	TCP	80	Custom 🔻	Q		Delete
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Figure 18: 8080 rules

• Now AWS Remote Desktop connection is ready to use click on instance and click on connect instance.

• Select RDP click on Download remote desktop file option.19

Services Q Search	[Alt+S]	D	\$ 0	Ireland •	MSCCLOUD/x20180837@
C2 > Instances > i-06be6d9d7ac7517d2 > Conne	ct to instance				
Connect to instance Info Connect to your instance i-06be6d9d7ac7517d2 (niketan_2018)	1837) using any of these options				
Session Manager RDP client EC2 serial	console				
Instance ID Instance ID I-06be6d9d7ac7517d2 (niketan_20180837)					
Connection Type					
 Connect using RDP client Download a file to use with your RDP client and retrieve your password. 	Connect using Fleet Manager To connect to the instance using Heet Manager Remote Desktop, the SSM Agent must be installed and running on the Instance. For more Information, see Working with SSM Agent 2				
You can connect to your Windows instance using a rem	ote desktop client of your choice, and by downloading and				
running the RDP shortcut file below:					
🕑 Download remote desktop file					
When prompted, connect to your instance using the fo	lawing details:				
p-bli- par					
Public Dris ec2-3-250-130-15.eu-west-	Administrator				
1.compute.amazonaws.com					
Password Get password					
If you've joined your instance to a directory, you	can use your directory credentials to connect to your				
instance.					

Figure 19: Remote Login

- Remote Desktop will get download in the local system now click on get password in the password section.
- click on uplaod private key file 20. select ".pem" file which is created while creating the instance. click on Decrypt password

EC2 > Instances > I-000edd907ec751742 > Get Windows password Get Windows password into Use your private key to retrieve and decrypt the initial Windows administrator password for this instance. Instance ID GH Windows Dassword into Was your private key to retrieve and decrypt the initial Windows administrator password for this instance. Instance ID GH Windows DassWord GH Windows DassWord into Pindesked9dards71742 (Netern_20180837) Key pair associated with this instance GH Instan_20180337 Private key Ethren end our part hey file or crops and paste its contents into the field below.	1000 A.S
Get Windows password Info Use your private key to retrieve and decrypt the initial Windows administrator password for this instance. Instance ID 0:	
Use your private key to retrieve and decryst the initial Windows administrator password for this instance. Instance ID G 1045646d71x2517122 (Netera, 20180837) Key pipi associated with this instance G netera20180837 Private key Ether equipiest propriate key file or cross and paths its contents into the field below.	
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Timere key Ethore upper private key file or copy and paste its contents into the field before.	
😭 Upload private key file	
Private key contents - optional	
Private key contents	
<i>h</i>	
Cancel Decrypt password	

Figure 20: Remote Login

• now copy the password and open the Remote desktop.

• It will ask password for login just paste the password which is already copied in last step and paste it while login21. click ok.

Windows Security	×
Enter your credentials	
These credentials will be used to ec2-3-250-130-15.eu-west-1.con	connect to npute.amazonaws.com.
Administrator	
••••••	୕
DESKTOP-R8QKL03\Administrate	or
Remember me	
More choices	
ОК	Cancel

Figure 21: Remote Desktop login .

Now we are ready to use AWS EC2 instance. lets configure back end in next section.

5 Backend Configuration

In this section there is backend configuration is explain step by step For application development Eclipse JEE Neon is used. Environment is establish using apache tomcat-7 and MySQL 8.1.

Backend process is implimented on AWS Ec2 platform

- 1. Visit the site and download eclipse with https://www.eclipse.org/downloads/ download.php?file=/oomph/epp/2022-12/R/eclipse-inst-jre-win64.exe&mirror_ id=17
- 2. Install the IDE and select the second option "Eclipse IDE for Enterprise java and web Developers" 22



Figure 22: Eclipse IDE Installation

3. select the path where you want to install the IDE and click ok

4. after installation open IDE. It will ask you for project path or create project just refer the code zip file and select the file "DedupServer" and open the project23.

Eclipse IDE Launcher

Select a directory as workspace

Eclipse IDE uses the workspace directory to store its preferences and development artifacts.

Workspace:	D:\MSC(NCI)\Semester 3\DataDedupEcli	ipse\DedupServer ~	Browse
Use this a	s the default and do not ask again		
Recent wo	ткэрасез	Launch	Cancel



5. Now right click on project and select run on server24

Project	Explorer ×	8 🕏 7	🗖 🖬 web.xml × 🗟 web.xml 📄 checkfileexistance.jsp 🕘 MyListener.java	🗋 ContextLoad.java 🗧 🗖	E Outline × 😑 🗄 🗖 🗖	
*	New Go Into	>	15 <description>Location to store uploaded file16 <param-name>file-upload</param-name> 17# <param-name>intervalue></param-name></description>	tion> ^	747 xml → € web-app id=WebApp_ID version=3.1	M Gmail 💽 \
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	Import	Alt+Shitt+1>	28 29 30			
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	Properties	Alt+Enter				🖾 8.jpg
						🖾 constant
						🔚 Login.jpg
						🖾 runFile.j
🐉 Dedup	Server				1	

Figure 24: Run Project

6. Now select the server tomcat and click on finish server will get start 25

Run On Server				\times
Run On Server				
Select which server to use				
How do you want to select the server?				
Choose an existing server				
Manually define a new server				
Select the server that you want to use:				
type filter text				
Server	State			
✓ ➢ localhost				
Tomcat v8.5 Server at localhost	🗄 Stopped			
Apache Tomcat v8.5 supports J2EE 1.2, 1.3, 1.4, and Java EE 5	, 6, and 7 Web	modules.	Co	lumns
? < Back Next >	Finish		Canc	el

Figure 25: Run server

- 7. Now lets setup MySQL so that we can save the entries and which will be helpful to keep the track of blocks map.
- 8. lets go through the download link of XAMP https://sourceforge.net/projects/ xampp/files/XAMPP%20Windows/8.1.12/xampp-windows-x64-8.1.12-0-VS16-installer. exe
- 9. install the xamp
- 10. open Xamp control pannel and click on start in front of MySQL and Apache

3	XAN	MPP Contro	ol Panel v3	.3.0				Je Config
Modules Service	Module	PID(s)	Port(s)	Actions				Netstat
	Apache			Start	Admin	Config	Logs	Shell
	MySQL			Start	Admin	Config	Logs	Explore
	FileZilla			Start	Admin	Config	Logs	Service
	Mercury			Start	Admin	Config	Logs	😡 Help
	Tomcat			Start	Admin	Config	Logs	Quit
1:39:05 1:39:05 1:39:06 1:39:06 1:39:06 1:39:06 1:39:06	[mysql] [Apache] [Apache] [mysql] [Mysql] [Apache] [Apache]	Status cha Attempting Status cha Attempting Status cha Attempting Status cha Status cha	nge detected: r to start Apach nge detected: r to stop MySQI nge detected: s to stop Apach to stop Apach	unning e app unning L app stopped e (PID: 1853 e (PID: 1124	36) 18)			

11. Now select the server to mcat and click on finish server will get start $26\,$

Figure 26: Xamp control panel

12. after starting both the server click on admin of MySql 27

<u> </u>	control a	1 10.010 [00.11	pricer rp. ce. co.						
R	XAMPP Control Panel v3.3.0							600	Config
Modules Service	Module	PID(s)	Port(s)	Actions				🔘 N	letstat
	Apache	27284 11064	80, 443	Stop	Admin	Config	Logs		Shell
	MySQL	26648	3306	Stop	Admin	Config	Logs	E D	xplorer
	FileZilla			Start	Admin	Config	Logs	🛃 Se	ervices
	Mercury			Start	Admin	Config	Logs	0	Help
	Tomcat			Start	Admin	Config	Logs		Quit
1:39:06	[mysql]	Status cha	ange detected: s	stopped					
1:39:06	[Apache]	Attempting	to stop Apache	e (PID: 1853	6)				
1:39:06	[Apache]	Attempting	to stop Apache	e (PID: 1124	8)				
1.39.07	[Apache]	Attempting	inge detected, s	stoppeu					
1.39.20	Imysqij	Status cha	and detected r	L app					
1.39.20	[Anache]	Attempting	to start Anach	e ann					- 1
1.39.21	[Apache]	Status cha	ange detected: r	unning					
1.00.2.	[, ipacito]	ordited one	inge detected.	Ginnig					

Figure 27: admin pannel navigation .

13. there will be phpmyadmin control pannel click on new database to create the database 28

10-we-1201 0-we-1201
php/wyAdmin
State 0.0 c
Receit Facetore Databases
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The A Company and A Company and A Company
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and much
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demo urtiteloi general_ci al Civid privileges
information potential certific generation of the provided in the second provided in the sec
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mpod urfiteis/general_ci = Chod privlogo
nastan urtfinöl_general_ci.gl.Ohdgridoges
portornance scheme ut-fit general, ci v . Chock privileges
ptprzyszkmin utłłą biln mi Otock priekogos
comparable unterlands_general_ci + Chock privileges
test lating_weekisk_cd and Orock privileges
Total: 11
Avoire Enabling the database studiates have might causes have y traffic balances the leads source and the MySOL source.
Enable statistics



14. insert the name for database in the api there is connection of database with the name "niketan" so just make the database with same name 29



Figure 29: creating Database

15. now import the SQL file in that database so that there is no need to create new tables and new structure 30



Figure 30: creating Database

16. just after import just click on choose file and select SQL file which is available in code zip open "niketan.sql". click on import 31

phpMuAdmin	💆 🖑 Amer. 522.001 + 🐻 Orabitor. skettin
0.000	🔀 Structure 👔 60L 🐁 Search 🔄 Query 🖶 Daport 🐷 Import 🖉 Operations 📧 Privileges 📣 Routines 🙁 Devits IN Triggers 🛣 Tracking 🔩 Devits IN Triggers
Depart Enverten	
	Importing into the database "niketan"
	Inporting into the database interart
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	Description with traditional for more solver.



17. now backend is also setup so everything is setup just make sure JDK is also install on cloud or AWS EC2 the step is also mention on the first part

6 Execution Configuration

- 1. In this section will look how user can setup this application for the organization or personal use so There will be executable file which will be present in zip file with the name niketanDesktop.exe user need to install that application on local machine.
- 2. Before installing the application make sure machine is setup with JRE
- 3. after the local installation user have to install the server application on the cloud server. which can also be get from DedupServer.exe apart from that user have to setup xamp in that so that server can get run properly.
- 4. Now when user will run the application from local machine then there will be login window.32

🕌 Login Screen			_		\times		
	N-DeDup						
User Name:							
Password:							
	Login	Reset					
	Click Here To	Register					
	Copyright © 2022 NiketanB All rigths reserved						

Figure 32: login window

🏂 Home			- 🗆 ×
Upload Data	HOME HOME	Take Backup	
	Welco	me	
	Copyright © 2022 Niketar	nB All rigths reserved	

5. user have to register first before login after login user will get control panel 33

Figure 33: Home .

- 6. Lets consider each and every scenario there is a different options
 - Upload data :- in this section user can upload the data on the cloud34 when user select add single file option user can upload single file, after selecting a file user have to hit the upload button at that time there will be the pop up "please wait". when file get update user can see upload time of file.

鏩 Upload			\times
List of Files:	UPLOAD FILE Add Single File Add Multiple Files	Delete	
	Upload Cancel		

Figure 34: upload

• in the download section user can view uploaded files and proceed for download the data35

🛓 Download					_	×
	1	ist of Files:	DOWNLOAD FILE			
	Sr. No.	File Name	Date	Delete		
		100m2103V				

Figure 35: download .

 $\bullet\,$ There is a backup option on which user can take the backup of file and restore later.36

الله Download	_	×
Васкир		
List of Files:		
1 : 100MB.csv(Created on:2022-		
Comment :		
Submit		

Figure 36: backup .

• After backup if there is a loss of file in local machine than it can be recover from restore section by just visiting to restore option.37.

٤			D	ownload			_ □	X
				Restore				
	List of Backu							
	Sr No	Comment	Date	Backup status	Restore Status	Restore	1.0	
	1	backup1.1	2022-12-14 1	-	-	Restore Ba	100	

Figure 37: Restore

This is overall manual which contain project setup configuration and execution setup manual.

References

Step 1: Launch a Windows Server Amazon EC2 instance - AWS CodeDeploy — docs.aws.amazon.com (n.d.). https://docs.aws.amazon.com/codedeploy/latest/userguide/tutorials-windows-launch-instance.html. [Accessed 14-Dec-2022].