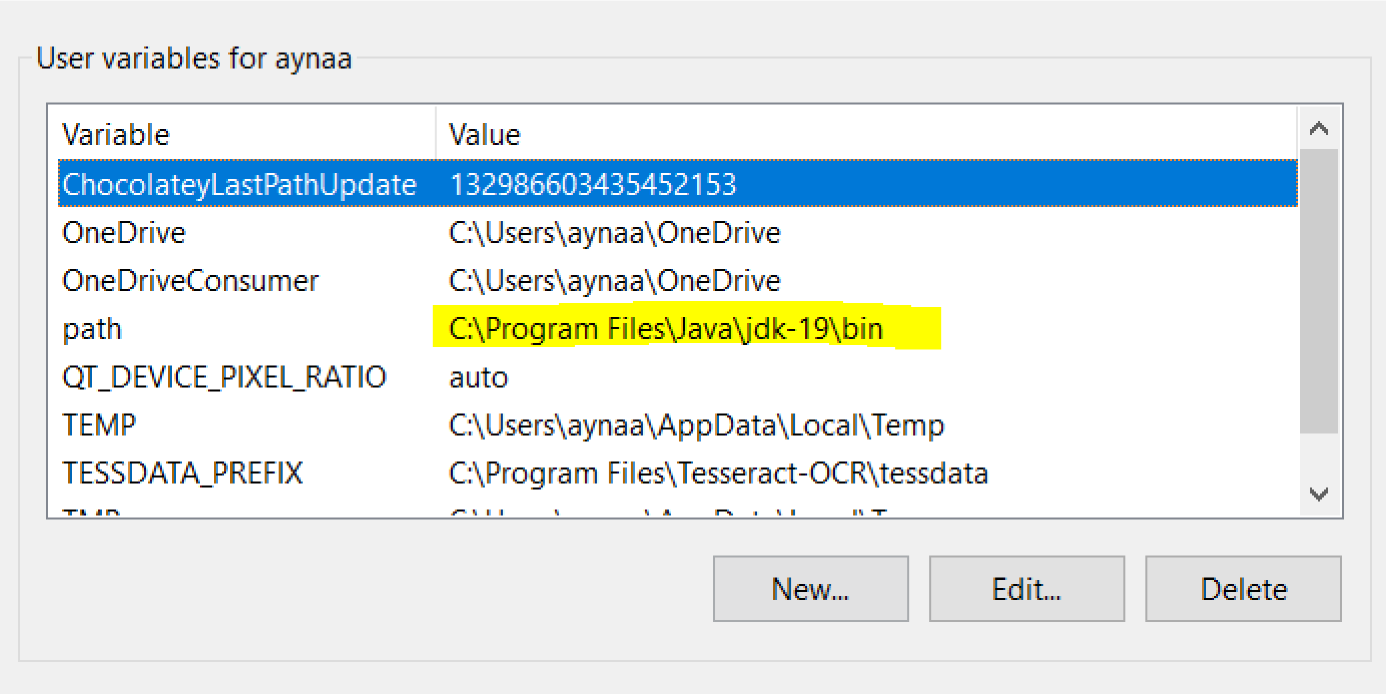
SA Practical

Things to Download

- Java jdk :https://www.oracle.com/in/java/technologies/downloads/#jdk19-windows(download x64 MSI Installer version)

  Set path environment variable for java

  Also install Eclipse IDE for Enterprise Java and Web Developers in Eclipse Ide options.



User variables for aynaa

Variable	Value
ChocolateyLastPathUpdate	132986603435452153
OneDrive	C:\Users\aynaa\OneDrive
OneDriveConsumer	C:\Users\aynaa\OneDrive
path	C:\Program Files\Java\jdk-19\bin
QT_DEVICE_PIXEL_RATIO	auto
TEMP	C:\Users\aynaa\AppData\Local\Temp
TESSDATA_PREFIX	C:\Program Files\Tesseract-OCR\tessdata

- Java Eclipse IDE :https://www.eclipse.org/downloads/
- Tomcat:https://tomcat.apache.org/download-80.cgi(Go to core and under it download zip version 8.5)

RMI Exp 4 code

IHello.java

```
import java.rmi.*;

public interface IHello extends Remote{

  public String message() throws RemoteException;

}
```

HelloImpl.java

```
import java.rmi.*;
import java.rmi.server.*;


public class HelloImpl extends UnicastRemoteObject
        implements IHello{

    public HelloImpl() throws RemoteException {
        //There is no action need  in this moment.
    }

    public String message() throws RemoteException {
        return ("Hello");
    }
}
```

HelloServer.java

```
import java.rmi.*;

public class HelloServer {

    private static final String host = "localhost";

    public static void main(String[] args) throws Exception {
        //** Step 1
        //** Declare a reference for the object that will be implemented
        HelloImpl temp = new HelloImpl();

        //** Step 2
        //** Declare a string variable for holding the URL of the object's name
        String rmiObjectName = "rmi://" + host + "/Hello";

        //Step 3
        //Binding the object reference to the object name.
        Naming.rebind(rmiObjectName, temp);

        //Step 4
        //Tell to the user that the process is completed.
        System.out.println("Binding complete...\n");
    }
}
```

HelloClient.java

```
import java.rmi.ConnectException;
import java.rmi.Naming;


public class HelloClient
{
    private static final String host = "localhost";

    public static void main(String[] args)
    {
        try
        {
            //We obtain a reference to the object from the registry and next,
            //it will be typecasted into the most appropiate type.
            IHello greeting_message = (IHello) Naming.lookup("rmi://"
                    + host + "/Hello");

            //Next, we will use the above reference to invoke the remote
            //object method.
            System.out.println("Message received: " +
                    greeting_message.message());
        }
        catch (ConnectException conEx)
        {
            System.out.println("Unable to connect to server!");
            System.exit(1);
        }
        catch (Exception ex)
        {
            ex.printStackTrace();
            System.exit(1);
        }
    }
}
```

RMI Exp 5 code

Server.java

```
public class Server implements interfaceCalculator{
  public int add(int a,int b){
    return a+b;
  }
  public int sub(int a,int b){
    return a-b;
  }

}
```

InterfaceCalculator.java

```
package middleware;

public interface interfaceCalculator{
   public int add(int a,int b);
   public int sub(int a,int b);

}
```

Client.java

```
package middleware;

public class Client {
    public static void main(String [] args)
   {

    interfaceCalculator i=new Server();
    System.out.println(i.add(12,13));
    System.out.println(i.sub(12,12));
   }

}
```

Wrapper Exp 6

Sender.java

```
import java.net.*;
import java.util.*;
public class Sender {
public static void main(String[] args) throws Exception{
  Scanner scn=new Scanner(System.in);
  System.out.println("Enter your Message:");
  String str=scn.nextLine();
  DatagramSocket ds=new DatagramSocket();
  InetAddress ip=InetAddress.getByName("127.0.0.1");
  DatagramPacket dp=new
  DatagramPacket(str.getBytes(),str.length(),ip,3000);
  ds.send(dp);
  ds.close();
  System.out.println("Message has been sent to Receiver Class Please Check:"+str);
 }
}
```

Receiver.java

```
import java.net.*;
public class Receiver {
  public static void main(String[] args) throws Exception{
  System.out.println("Waiting for sender to send message");
  DatagramSocket ds=new DatagramSocket(3000);
  byte[] buf=new byte[1024];
  DatagramPacket dp=new DatagramPacket(buf,1024);
  ds.receive(dp);
  String str=new String(dp.getData(),0,dp.getLength());
  System.out.print(str);
  ds.close();
  System.out.println("Message received Successfully..");
 }
}
```