Name of the Course : Complete Java SE8 Developer Bootcamp

Level : Medium

Tool Stack: Java 8

Problem Statement : A Employer registration application collects employer birth date and need to validate the same . The business rules are the

1. the age should be greater than 18 , if less than 18 print “Too young to apply”. Else print candidate accepted
2. the date format can be one of the three following formats month[2 digit]/date[2 digit]/year [4 digit]
3. the date separators can be dot . ,slash/ and hypen -

Description : Create class DateValidator with following methods .

1.Public static void main(String arg[])for accepting user input and invokes methods validateParseDate()

2.method static boolean validateParseDate(String dateString)

return true if the date is valid .

3.method static int calculateAge(String dateString)

return age .

Code:

**import** java.time.LocalDate;

**import** java.time.Month;

**import** java.time.Period;

**import** java.time.format.DateTimeFormatter;

**import** java.time.format.DateTimeParseException;

**import** java.time.format.ResolverStyle;

**import** java.util.Scanner;

**public** **class** DateValidator {

**public** **static** **void** main(String[] args) {

Scanner sc = **new** Scanner(System.***in***);

System.***out***.println("Enter date in month date year format");

String dateString = sc.nextLine();

**if**( *validateParseDate*(dateString)&& *calculateAge*(dateString) >=18 )

System.***out***.println("Valid Date");

**else**

System.***out***.println("Invalid Date");

}

//Java 8 - Use DateTimeFormatter (thread-safe)

**public** **static** **boolean** validateParseDate(String dateStr )

{

LocalDate date = **null**;

String dateFormat;

**if** (dateStr.contains("-"))

dateFormat = "MM-dd-uuuu";

**else** **if** (dateStr.contains("."))

dateFormat = "MM.dd.uuuu";

**else** dateFormat = "MM/dd/uuuu";

DateTimeFormatter dateFormatter = DateTimeFormatter.*ofPattern*(dateFormat)

.withResolverStyle(ResolverStyle.***STRICT***);

**try** {

date = LocalDate.*parse*(dateStr, dateFormatter);

} **catch** (DateTimeParseException e) {

// e.printStackTrace();

**return** **false**;

}

**return** **true**;

}

**public** **static** **int** calculateAge(String dateStr) {

LocalDate currentDate = LocalDate.*now*();

//Today's date

LocalDate date = **null**;

String dateFormat;

**if** (dateStr.contains("-"))

dateFormat = "MM-dd-uuuu";

**else** **if** (dateStr.contains("."))

dateFormat = "MM.dd.uuuu";

**else** dateFormat = "MM/dd/uuuu";

DateTimeFormatter dateFormatter = DateTimeFormatter.*ofPattern*(dateFormat)

.withResolverStyle(ResolverStyle.***STRICT***);

// DateTimeFormatter formatter = DateTimeFormatter.ofPattern("M/d/uuuu");

LocalDate birthDate;

//convert String to LocalDate

**try** {

birthDate = LocalDate.*parse*(dateStr, dateFormatter); //Birth date

} **catch** (Exception e) {

System.***out***.println(e.getLocalizedMessage());

**return** 0;

}

**if** ((birthDate != **null**) && (currentDate != **null**)) {

**return** Period.*between*(birthDate, currentDate).getYears();

} **else** {

**return** 0;

}

}

}

Junit Testing

**import** **static** org.junit.Assert.*assertEquals*;

**import** org.junit.Test;

**import** handson.DateValidator;

**public** **class** TestDateValidator {

@Test

**public** **void** testValidateDates() {

*assertEquals*(**true** ,DateValidator.*validateParseDate*("11.04.1978"));

*assertEquals*(**false**,DateValidator.*validateParseDate*("22.4.1978"));

*assertEquals*(**true** ,DateValidator.*validateParseDate*("11-04-1978"));

*assertEquals*(**false**,DateValidator.*validateParseDate*("22/4/1978"));

*assertEquals*(**false** ,DateValidator.*validateParseDate*("15.04.1978"));

*assertEquals*(**true**,DateValidator.*validateParseDate*("12.24.2020"));

*assertEquals*(41 ,DateValidator.*calculateAge*("11.04.1978"));

*assertEquals*(41,DateValidator.*calculateAge*("12.04.1978"));

*assertEquals*(41 ,DateValidator.*calculateAge*("11-04-1978"));

*assertEquals*(41,DateValidator.*calculateAge*("12/04/1978"));

*assertEquals*(42 ,DateValidator.*calculateAge*("07.04.1978"));

*assertEquals*(0,DateValidator.*calculateAge*("01.01.2020"));

}

}

Test Data1

Sample input:

11.04.1978

sample output:

Valid Date

Test Data2

sample input :

01.01.2020

sample output :

Invalid Date

Learning outcome: Participant could able to learn how to use StringBuffer ,LinkedHashset classes.

2.Name of the Course : Complete Java SE8 Developer Bootcamp

Level : Easy

Tool Stack : Java8[Encapsulation, String API]

Problem Statement : Contact Printer - A Contacts app take comma separated values for contact and prints information in a specific format .

Description : Create User class with following attributes and parameterised constructor .

Create MainClass with main method to accept contact as comma separated value and Print in the below format .

Sample Input :

1001, Abishek Sharma , [abhis@gmail.com](mailto:abhis@gmail.com),9876568456 , CTS ,Delhi -112690

Sample Output:

Contact Id : 1001

Name : Abishek Sharma

Email : [abhi@gmail.com](mailto:abhi@gmail.com)

company : CTS

City : Delhi

Pin code : 112690

3.Name of the Course : Java SE8 Developer Bootcamp

Level : Easy

Tool Stack : Java 8 [Static variables]

Problem Statement : Provide a code solution to check the number of users created in an application session.

Description : Create User class with following attributes and parameterised constructor .

|  |  |
| --- | --- |
| username | String |
| email | String |
| count | integer-static |

and another MainClass with main method.Provide ways to add multiple user to the application at an array , the count variable should hold/display the number of users created in the session.

sample Input : ashok ,[ashok@gmail.com](mailto:jagadesh@gmail.com)

sample output : User added , count : 1

4.Name of the Course : Java SE8 Developer Bootcamp

Level : Easy

Tool Stack : Java 8 [Polymorphism]

Problem Statement : Provide a code solution to print area of a given shapes [Rectangle , Square , triangle] .

Description :

Create classes Shape class attribute area(double) with methods printArea() .

|  |  |
| --- | --- |
| area | double |
| abstract void getInput() |  |
| printArea() | method to print the area. |
|  |  |

Create class Square , Rectangle, Triangle extending Shape and overriding printArea().

Have UserMain class with attribute shape of type Shape.

Assign the shape to different object and print the area.

Name of the Course : Complete Java SE8 Developer Bootcamp

Level : Easy

Tool Stack : Java8 and Junit5

Problem Statement : Provide a code solution to check the user credentials using Java 8 predicate.

Description : Create two classes one User class with username and password fields and with a parameterised constructor and another MainClass with two static methods 1. Public static Boolean checkUser(User user), which accepts User object and returns true or false

2. pubic static void main method, for reading the username and password from input devices and call the checkUser method to test it.

Code:

**public** **class** User {

**private** String username;

**private** String password;

**public** String getUsername() {

**return** username;

}

**public** **void** setUsername(String username) {

**this**.username = username;

}

**public** String getPassword() {

**return** password;

}

**public** **void** setPassword(String password) {

**this**.password = password;

}

**public** User(String username, String password) {

**super**();

**this**.username = username;

**this**.password = password;

}

}

**import** java.util.\*;

**import** java.util.function.Predicate;

**public** **class** MainClass {

**public** **static** **boolean** checkUser(User user) {

Predicate<User> predicate = usr-> usr.getUsername().equals("admin") && usr.getPassword().equals("1234");

**return** predicate.test(user);

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter your login");

String uname = scanner.nextLine();

System.***out***.println("Enter password");

String pwd = scanner.nextLine();

User user = **new** User(uname,pwd);

**if**(*checkUser*(user))

System.***out***.println("Valid User");

**else**

System.***out***.println("Invalid User");

}

}

Junit Testing

**import** **static** org.junit.jupiter.api.Assertions.\*;

**import** org.junit.jupiter.api.Assertions;

**import** org.junit.jupiter.api.Test;

**class** MainClassTest {

@Test

**void** testCheckUserLogin() {

//Test will pass

User user1 = **new** User("admin","1234");

User user2 = **new** User("admin","admin");

Assertions.*assertEquals*(**true**, MainClass.*checkUser*(user1));

Assertions.*assertEquals*(**false**, MainClass.*checkUser*(user2));

}

}

Test Data1

Enter your login

admin

Enter password

1234

Valid User

Test Data2

Enter your login

admim

Enter password

test

Invalid User

Learning outcome: Participant could able to learn how to use the predicate functional interface.