

REPORT FOR DEGREE DETECTIVE:

As project of class assignment:-

Under the Guidance of:

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Submitted By:

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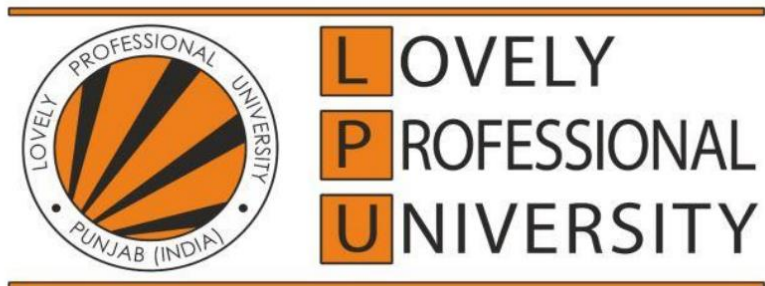
Name of University :- Lovely Professional University.

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Jalandhar, Punjab, India.



Declaration:-

We hereby declare that the project work entitled “The Temperature Converter” is an authentic record of our own work carried out as requirements of Java Project for the award of B.Tech degree in P132: B.Tech(Computer Science and Engineering) from Lovely Professional University, Phagwara, Punjab under the guidance of Dr.Ranjith Kumar(26108). All the information furnished in this Java project report is based on our own intensive work and is genuine.

Name of the Student :

Prabhat Sharma

Registration no: 12109008

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INTRODUCTION

A temperature converter helps in the conversion of the measurement units of the temperature recorded in a particular unit. Temperature expresses the degree of heat or cold of a solid, liquid, or gas. Temperature is measured using a thermometer. While Kelvin (K) is the SI unit of temperature, people generally use Centigrade or Celsius (°C) and Fahrenheit (°F) to measure temperature.

For example, the lowest practical temperature on Earth is -273.15 degrees Celsius. Celsius is a measure of temperature. This recording can be represented in Kelvin as 0 K. We use temperature converter to find the different readings of a given temperature on different unit measuring scales.

UNIT OF TEMPERATURE

Different units can be used to record the temperature. The three different units used for measuring temperature are Celsius (°C) Fahrenheit (°F), and Kelvin (K). Kelvin is the SI unit of measuring temperature, whereas Fahrenheit and Celsius are commonly used scales.

Formula For converting temperature Scales

Temperature reading given in one unit can be converted into the other using certain conversion formulas. These conversion formulas can be studied as,

- Celsius to Fahrenheit Conversion
- Fahrenheit to Celsius Conversion
- Celsius to Kelvin Conversion
- Fahrenheit to Kelvin Conversion

Formula

- Celsius to Fahrenheit: $C \rightarrow F$
 $F = [9/5 * C] + 32$
- Fahrenheit to Celsius: $F \rightarrow C$
 $C = [5/9] * (F - 32)$
- Kelvin to Celsius: $K \rightarrow C$
 $C = K - 273$
- Celsius to Kelvin: $C \rightarrow K \rightarrow K = C + 273.15$

Scope of Project

The scope of a temperature converter project typically involves designing and developing a software application or tool that can convert temperature measurements from one scale to another. The main objective of the project is to create a user-friendly interface that allows users to easily convert temperature values between Celsius, Fahrenheit, and Kelvin scales.

The project scope may include the following components:

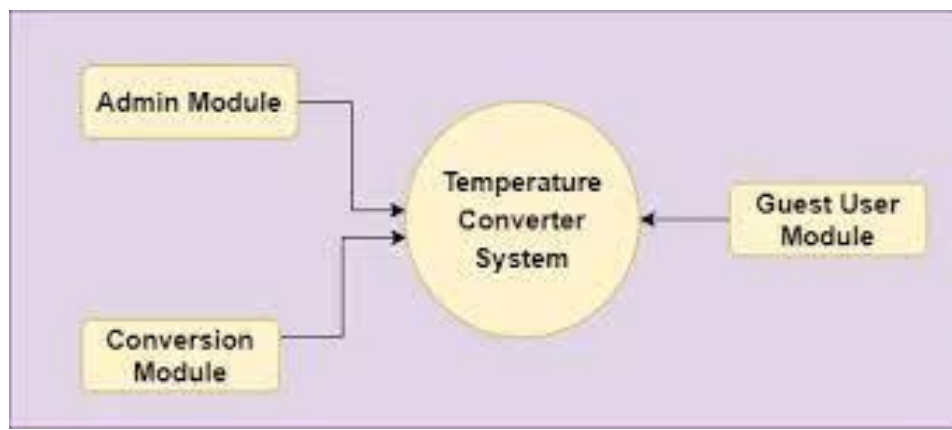
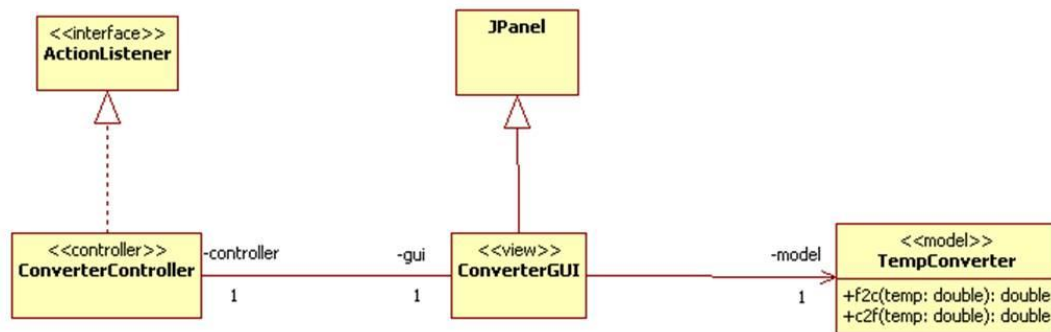
1. User interface design: The project should have a simple and intuitive interface that allows users to enter the temperature value and select the input and output scales.
2. Temperature conversion algorithm: The project should include an algorithm to convert temperature values from one scale to another. The algorithm should be accurate and efficient.
3. Error handling: The project should include error handling mechanisms to ensure that the user inputs valid temperature values and selects valid input and output scales.
4. Unit testing: The project should include a set of unit tests to verify the correctness of the conversion algorithm and error handling mechanisms.
5. Deployment: The project should be deployed to a suitable platform, such as a web server or a mobile application store, to make it accessible to users.

The scope of the project can be expanded to include additional features, such as support for other temperature scales, historical temperature data, or integration with other applications.

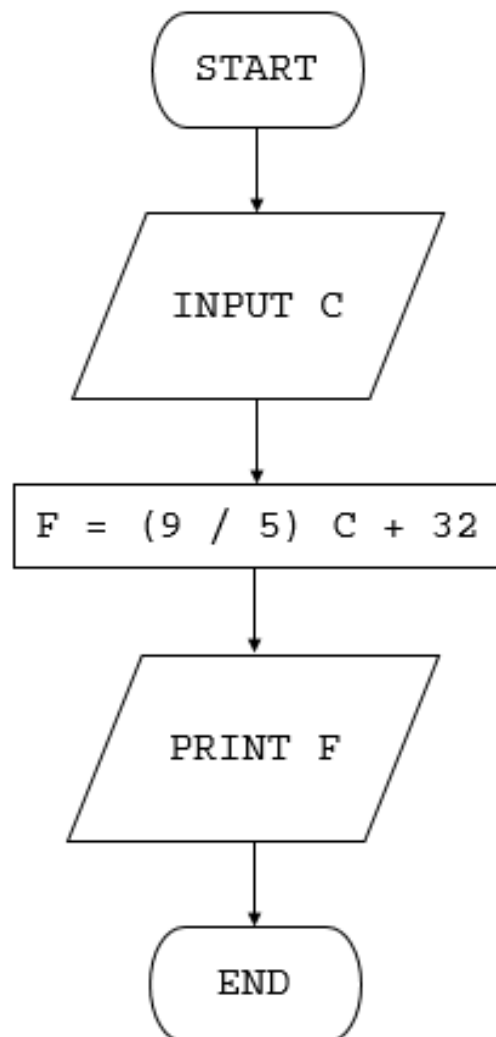
System Overview:

Temperature is the measure of hotness or coldness expressed in terms of any of several scales, including Fahrenheit and Celsius. Temperature indicates the direction in which heat energy will spontaneously flow—i.e., from a hotter body (one at a higher temperature) to a colder body (one at a lower temperature).

Modulus:

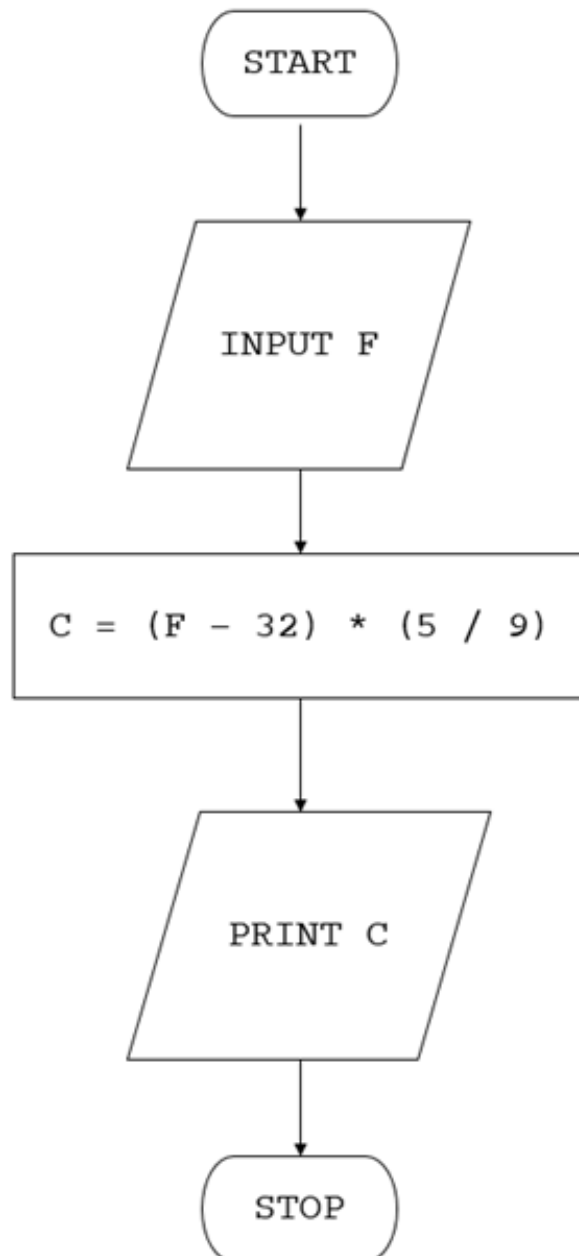


ENTER DEGREES C. CONVERT TO DEGREES F



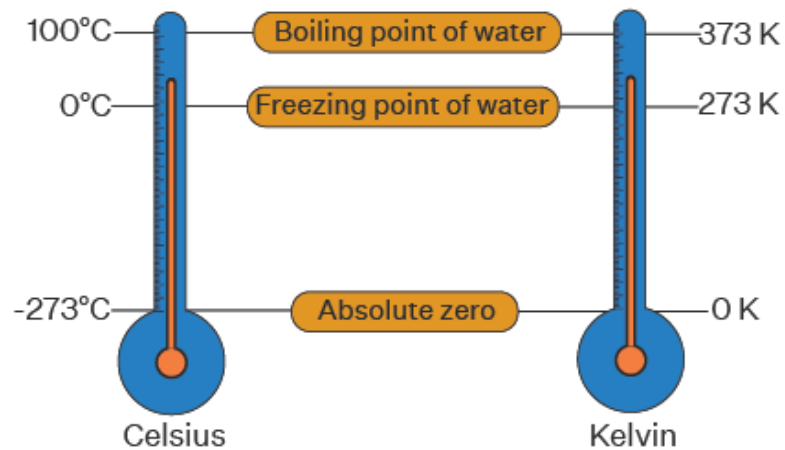
Celsius Converter (°C \Rightarrow °F or K):

This function will only convert the Celsius temperature value into Fahrenheit or Kelvin. So whenever the user enters a °C value.



Kelvin Converter (K \Rightarrow °F or °C):-

This function will only convert Kelvin temperature value into Fahrenheit or Celsius. When a user enters a K value.



$$\text{Celsius} = \text{Kelvin} - 273.15^{\circ}$$

Design

Source of Project:

Decide on the input and output format: Determine the input and output format you want for your temperature conversion project. For example, you might want to accept input in Celsius and output in Fahrenheit, or vice versa.

Write the conversion formula: Research the formula to convert temperatures between the two units you've chosen. For example, to convert Celsius to Fahrenheit, the formula is: $(\text{Celsius} * 1.8) + 32 = \text{Fahrenheit}$.

Code the conversion function: Write a function that accepts the input temperature and applies the conversion formula to produce the output temperature.

Add user input: Create a user interface that prompts the user for input and displays the output.

Screenshot:

Welcome Everyone

Login Page

Username Prabhat

Password Prabhat123

☒ Show Password

Login

[Don't have an account?](#) **Sign up**

Sign Up

First Name

Prabhat

Last Name

Sharma

Date Of Birth

29-12-2001

Gender

☒ Male

☐ Female

☐ Transgender

Username

sdfjs

Password

sdsdfk

Confirm Password

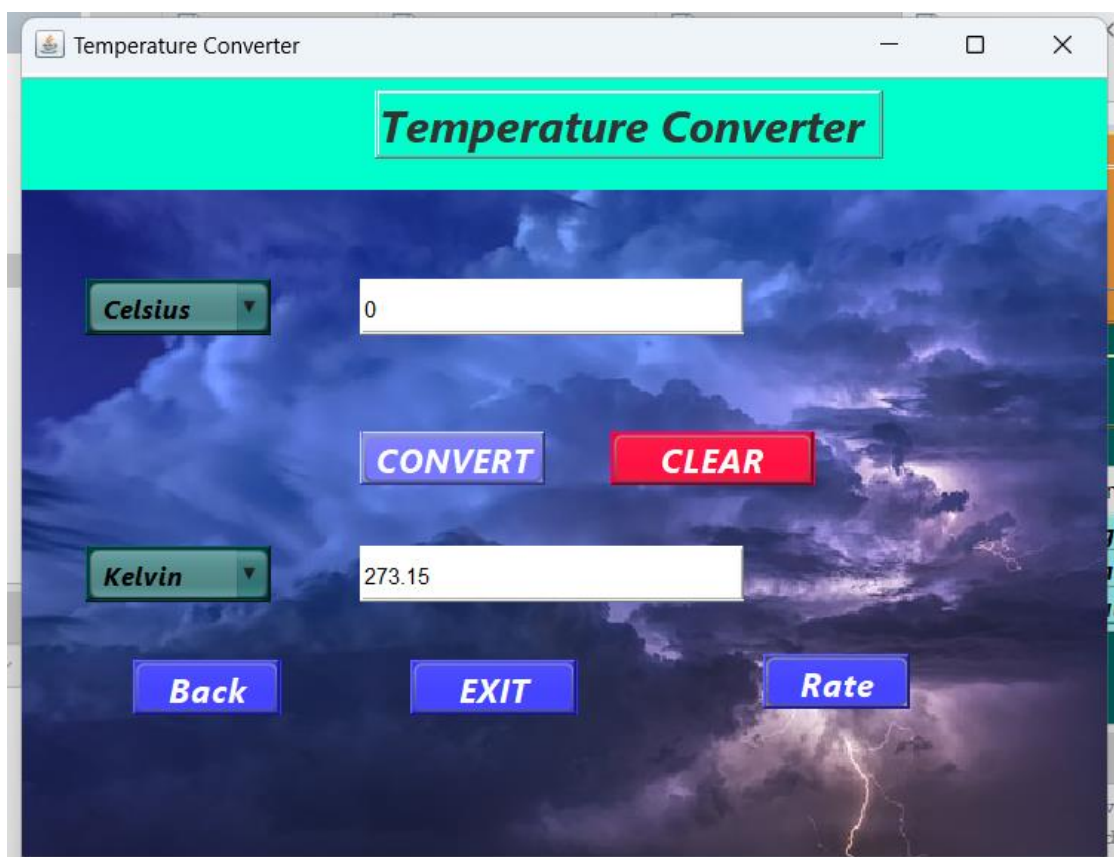
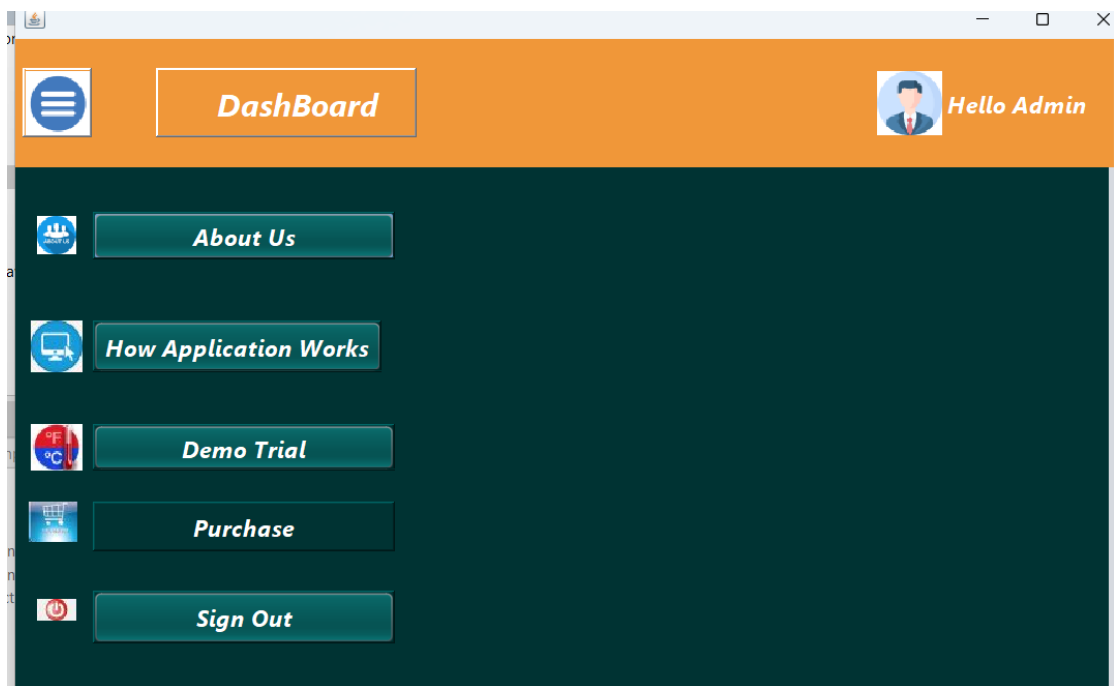
sdsdfk

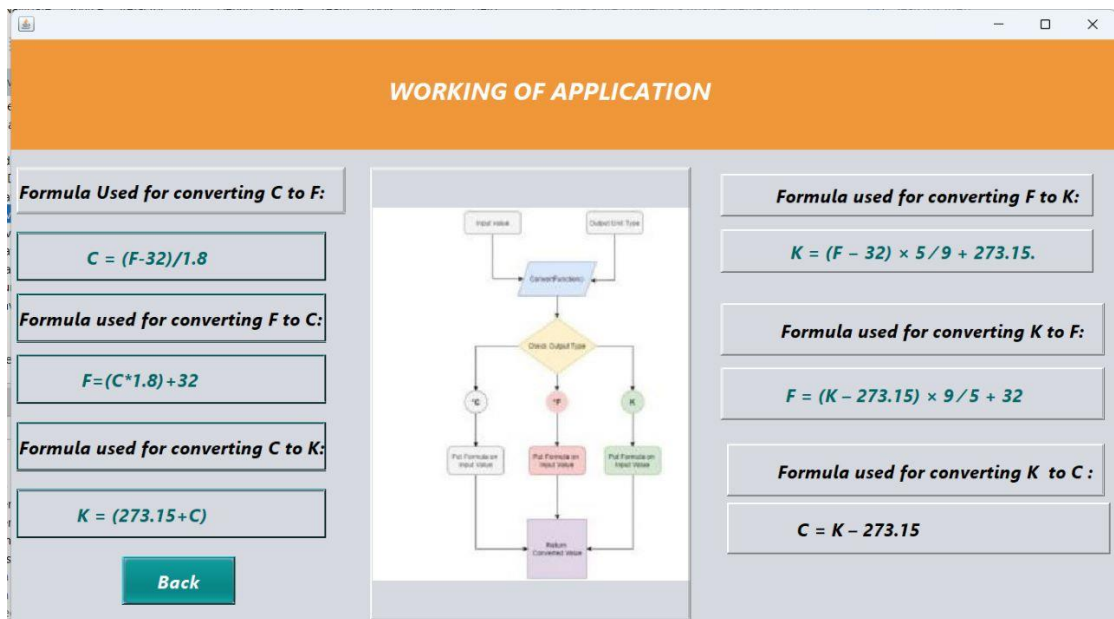
Email Id

djf@gmail.com

CANCEL

CREATE





Feedback Form

*** Email Address**
(at which you want to receive notifications about new updates)

MrSharma@gmail.com

*** Phone Number**

7005382838

*** Rating**
(How much you will rate us out of 10)

9

Submit Feedback
(KINDLY FILL THE FEEDBACK, YOUR RESPONSE IS VALUABLE FOR US)

Nice Application

Submit **Back**

Explanation:

The Project “Degree Detective” consists of 6 phases :

- 1) LOGIN PAGE
- 2) Sign up

- 3) PURCHASE**
- 4) TEMPERATURE CONVERSION**
- 5) DASHBOARD**
- 6) FEEDBACK**

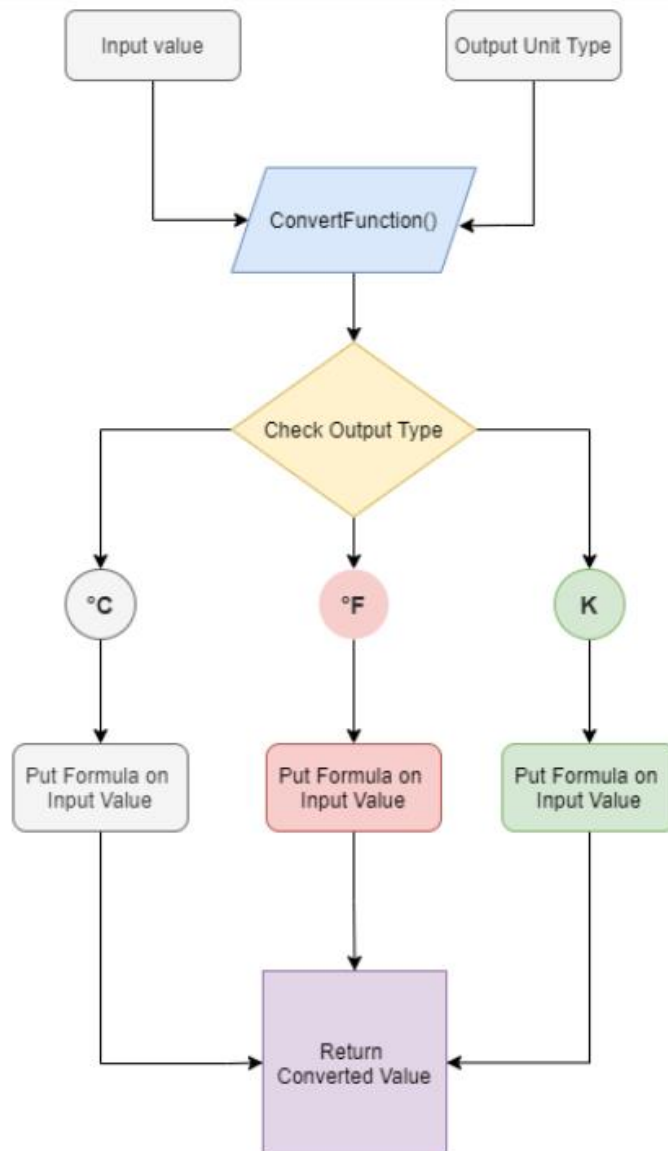
The first j frame consists of login page simply ask the user to enter the username and password to further get in.

The second J frame consists of project member details who were involved in this project .

The third J frame contains Project title “Degree Detective” and the formula that has been used to write the logic and code.

The SIX frame contains the main temperature conversion page where all the conversion is going to happen. The values that user puts in Degree Celsius will be converted to Fahrenheit or Kelvin and vice-versa.

E-R diagram:



Our function will take two arguments: Input temperature value and output temperature unit type. The function will check the output unit type, apply the formula according to the output temperature unit types and return the converted value.

1. Fahrenheit Converter (°F \Rightarrow °C or K)

This function will only convert the Fahrenheit temperature value into Celsius or Kelvin. So whenever the user enters a °F value, we have to call this function.

The reference code is shown below:

```
if(box1.equals(anObject: "Fahrenheit") && box2.equals(anObject: "Celsius")){
    double f = Double.parseDouble(s: jTextField1.getText());
    double c = ((f-32)/1.8);
    jTextField2.setText(t: String.valueOf(d: c));
}

else if(box1.equals(anObject: "Fahrenheit") && box2.equals(anObject: "Kelvin")){
    double f = Double.parseDouble(s: jTextField1.getText());
    double k = (((f-32)/1.8)+273.15);
    jTextField2.setText(t: String.valueOf(d: k));
}

else if(box1.equals(anObject: "Fahrenheit") && box2.equals(anObject: "Fahrenheit")){
    double f = Double.parseDouble(s: jTextField1.getText());
    jTextField2.setText(t: String.valueOf(d: f));
}

if(box1.equals(anObject: "Kelvin") && box2.equals(anObject: "Celsius")){
    double k = Double.parseDouble(s: jTextField1.getText());
    double c = (k-273.15);
    jTextField2.setText(t: String.valueOf(d: c));
}

else if(box1.equals(anObject: "Kelvin") && box2.equals(anObject: "Fahrenheit")){
    double k = Double.parseDouble(s: jTextField1.getText());
    double f = (((k-273.15)*1.8)+32);
    jTextField2.setText(t: String.valueOf(d: f));
}
```

2. Celsius Converter (°C \Rightarrow °F or K)

This function will only convert the Celsius temperature value into Fahrenheit or Kelvin. So whenever the user enters a °C value, we have to call this function. The reference code is shown below:

```
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    String box1 = (String)jComboBox1.getSelectedItemAt();
    String box2 = (String)jComboBox2.getSelectedItemAt();

    if(box1.equals(anObject: "Celsius") && box2.equals(anObject: "Fahrenheit")){
        double c = Double.parseDouble(s: jTextField1.getText());
        double f = ((c*1.8)+32);
        jTextField2.setText(t: String.valueOf(d: f));
    }

    else if(box1.equals(anObject: "Celsius") && box2.equals(anObject: "Kelvin"))
    {
        double c = Double.parseDouble(s: jTextField1.getText());

        double k =(c + 273.15 );

        jTextField2.setText(t: String.valueOf(d: k));
    }

    else if(box1.equals(anObject: "Celsius") && box2.equals(anObject: "Celsius")){
        double c =Double.parseDouble(s: jTextField1.getText());
        jTextField2.setText(t: String.valueOf(d: c));
    }

    if(box1.equals(anObject: "Fahrenheit") && box2.equals(anObject: "Celsius")){
        double f = Double.parseDouble(s: jTextField1.getText());
        double c = ((f-32)/1.8);
    }
}
```

3. Kelvin Converter ($K \Rightarrow ^\circ F$ or $^\circ C$)

This function will only convert Kelvin temperature value into Fahrenheit or Celsius. When a user enters a K value, we have to call this function. The reference code is shown below:

```
if(box1.equals(anObject: "Fahrenheit") && box2.equals(anObject: "Celsius")){
    double f = Double.parseDouble(s: jTextField1.getText());
    double c = ((f-32)/1.8);
    jTextField2.setText(t: String.valueOf(d: c));
}

else if(box1.equals(anObject: "Fahrenheit") && box2.equals(anObject: "Kelvin")){
    double f = Double.parseDouble(s: jTextField1.getText());
    double k = (((f-32)/1.8)+273.15);
    jTextField2.setText(t: String.valueOf(d: k));
}

else if(box1.equals(anObject: "Fahrenheit") && box2.equals(anObject: "Fahrenheit")){
    double f = Double.parseDouble(s: jTextField1.getText());
    jTextField2.setText(t: String.valueOf(d: f));
}

if(box1.equals(anObject: "Kelvin") && box2.equals(anObject: "Celsius")){
    double k = Double.parseDouble(s: jTextField1.getText());
    double c = (k-273.15);
    jTextField2.setText(t: String.valueOf(d: c));
}

else if(box1.equals(anObject: "Kelvin") && box2.equals(anObject: "Fahrenheit")){
    double k = Double.parseDouble(s: jTextField1.getText());
    double f = (((k-273.15)*1.8)+32);
    jTextField2.setText(t: String.valueOf(d: f));
}
```

Outcome of project

The outcome of a temperature converter depends on the input temperature and the units of measurement used in the conversion. Generally, temperature converters are used to convert temperatures between different units such as Celsius, Fahrenheit, and Kelvin.

For example, if you input a temperature of 25 degrees Celsius into a temperature converter and select the option to convert it to Fahrenheit, the outcome would be 77 degrees Fahrenheit. Similarly, if you input a temperature of 32 degrees Fahrenheit and select the option to convert it to Celsius, the outcome would be 0 degrees Celsius.

It's important to note that temperature converters use mathematical formulas to convert temperatures between units, so the outcome is typically precise and accurate as long as the correct formula is used and the input temperature is entered correctly.

Conclusion:

In conclusion, temperature conversion is an essential concept in science, engineering, and everyday life. It involves converting temperatures from one unit to another, such as from Celsius to Fahrenheit or Kelvin. During this project, we learned how to build a temperature conversion program that can convert temperatures from one unit to another. We also learned about the different temperature units and their conversion formulas, including Celsius, Fahrenheit, Kelvin. We discovered that the conversion formula differs depending on the unit being converted from and the unit being converted to. Overall, this project helped us gain a better understanding of temperature conversion and how it is used in various fields. We also developed our programming skills by building a temperature conversion program from scratch.