

**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA,  
SURATHKAL.**



**DEPARTMENT: - INFORMATION TECHNOLOGY**  
**IT351: - Human Computer Interaction**  
**Assignment - 4**

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## ● Problem Statement :-

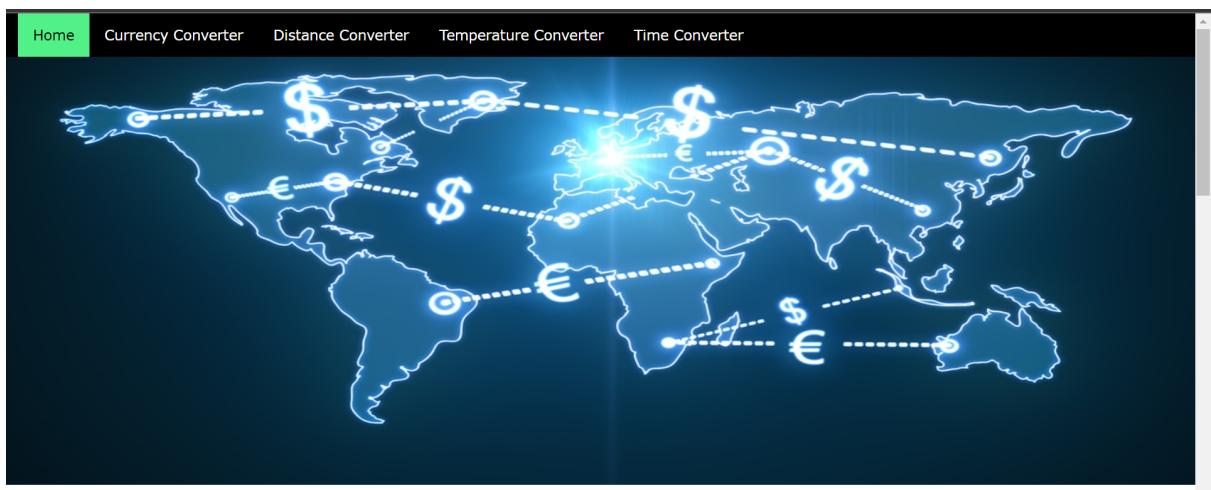
Design and implement a web based user interface for CONVERTOR application which is a composite of many converters like distance converter, temperature converter, currency converter etc. Your application should include three or more converters and design should incorporate the UI principles.

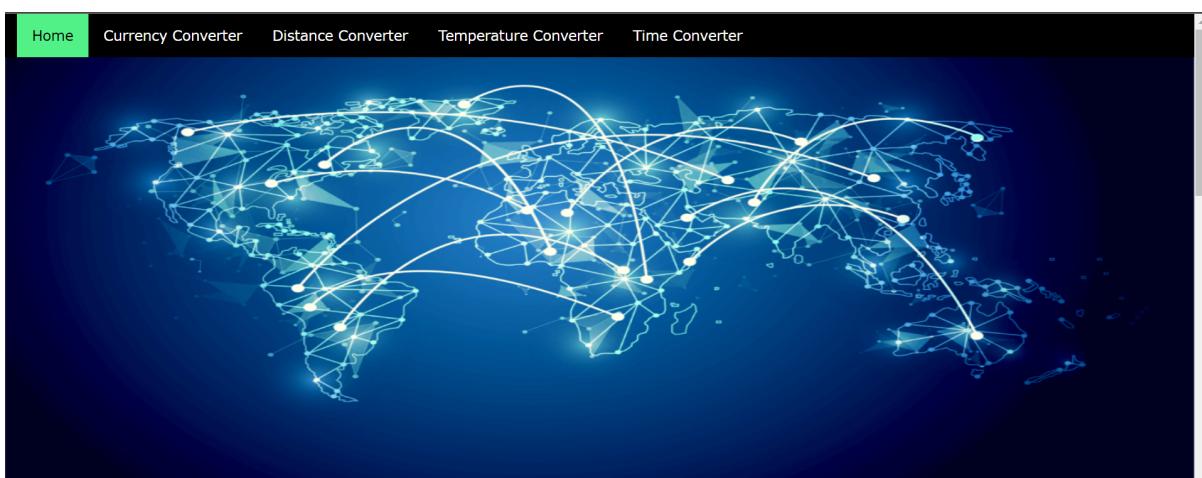
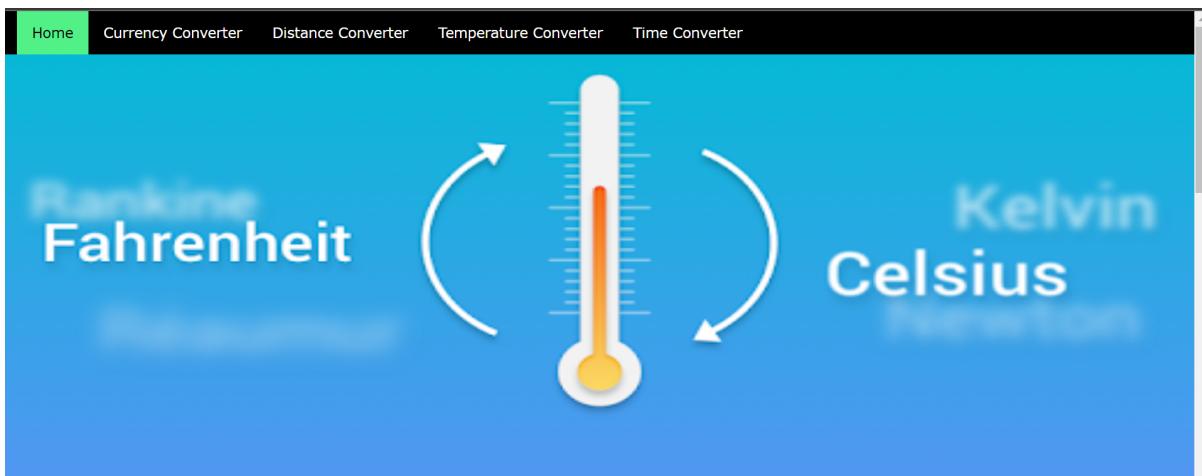
## ● Design :-

I created a website for four converters that are currency, distance, temperature and time converters.

The home page includes a navigation bar through which we can directly redirect to respective converters. It also includes a image sliding feature followed by links to redirect to converter pages then some information about conversion and lastly it includes footer.

**/\*home.html\*/**





Home Currency Converter Distance Converter Temperature Converter Time Converter

CONVERTERS

**Currency** Click Here

**Distance** Click Here

**Temperature** Click Here

**Time** Click Here

**About Conversion**

Conversion of units is the conversion between different units of measurement for the same quantity, typically through multiplicative conversion factors. The process of conversion depends on the specific situation and the intended purpose. This may be governed by regulation, contract, technical specifications or other published standards. Engineering judgment may include such factors as:

- The precision and accuracy of measurement and the associated uncertainty of measurement.
- The statistical confidence interval or tolerance interval of the initial measurement.
- The number of significant figures of the measurement.
- The intended use of the measurement including the engineering tolerances.
- Historical definitions of the units and their derivatives used in old measurements; e.g., International foot vs. US survey foot.

Some conversions from one system of units to another need to be exact, without increasing or decreasing the precision of the first measurement. This is sometimes called soft conversion. It does not involve changing the physical configuration of the item being measured.

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## /\*CurrencyConvertor.html\*/

This page includes two dropdowns for selecting the base currency and target currency. It also has one input field for entering the amount. At last it has two buttons one is for converting i.e convert button and reset button for resetting all the fields. Validation is also done which shows an appropriate message through alert messages.

**Currency Converter**

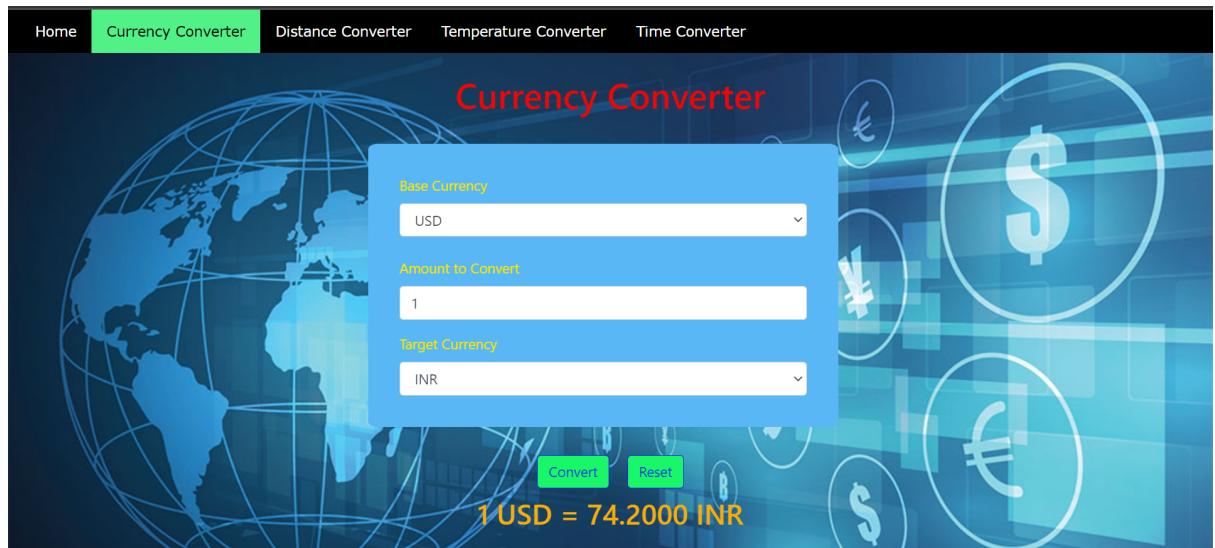
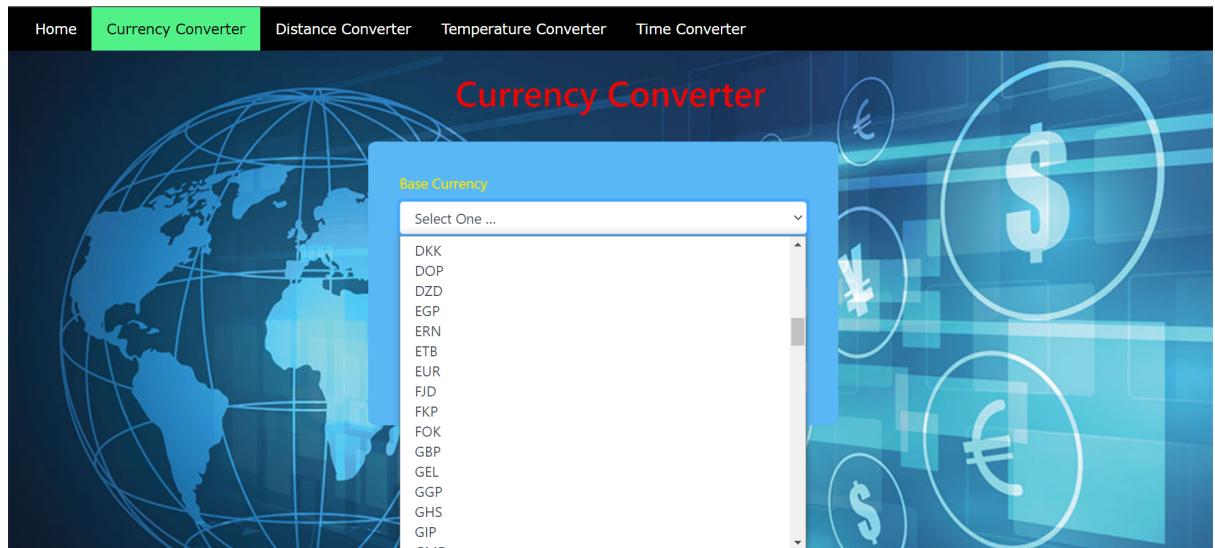
Base Currency  
Select One ...

Amount to Convert  
Enter Amount ...

Target Currency  
Select One ...

Convert Reset

In the dropdown field you can see more options. I extracted these options from an API <https://api.exchangerate-api.com/v4/latest/USD>. All the values in this API are with respect to the United States Dollar(USD).There are 160 currency types.The currency types are in alphabetical order so that users can easily and fastly choose the currency type.



## /\*DistanceConvertor.html\*/

This page includes two dropdowns for selecting the base distance and target distance. It also has one input field for entering the value. At last it has two buttons one is for converting i.e convert button and reset button for resetting all the fields. Validation is also done which shows an appropriate message through alert messages.

The screenshot shows a top navigation bar with links: Home, Currency Converter, Distance Converter (highlighted in green), Temperature Converter, and Time Converter. Below the navigation is a title "Distance Converter" over a background map of the world at night with glowing city lights. In the center is a light blue modal form. It contains three input fields: "Base Distance" (dropdown menu showing "Select One ..."), "Value to Convert" (text input field showing "Enter Value ..."), and "Target Distance" (dropdown menu showing "Select One ..."). At the bottom of the modal are two buttons: "Convert" and "Reset".

There are 11 type options present in the dropdown. The distance types are in alphabetical order so that users can easily and fastly choose the distance type.

The screenshot shows the same Distance Converter page as above, but the "Base Distance" dropdown is now open, displaying a list of 11 distance units: Centimetre, Foot, Inch, Kilometre, Metre, Micrometres, Mile, Millimetre, Nanometre, Nautical mile, and Yard. The "Centimetre" option is highlighted with a blue background. The rest of the interface remains the same, including the "Value to Convert" input field and the "Target Distance" dropdown below it.

Home    Currency Converter    **Distance Converter**    Temperature Converter    Time Converter

## Distance Converter

Base Distance  
Kilometre

Value to Convert  
1

Target Distance  
Metre

Convert    Reset

1 kilometre = 1000 Metre

### **/\*TemperatureConvertor.html\*/**

This page includes two dropdowns for selecting the base temperature and target temperature. It also has one input field for entering the value. At last it has two buttons one is for converting i.e convert button and reset button for resetting all the fields. Validation is also done which shows an appropriate message through alert messages.

Home    Currency Converter    Distance Converter    **Temperature Converter**    Time Converter

## Temperature Converter

Base Temperature  
Select One ...

Value to Convert  
Enter Value ...

Target Temperature  
Select One ...

Convert    Reset

There are 3 type options present in the dropdown.

The screenshot shows the Temperature Converter page. At the top, there is a navigation bar with links: Home, Currency Converter, Distance Converter, Temperature Converter (which is highlighted in green), and Time Converter. Below the navigation bar is a large background image of a thermometer with scales for Fahrenheit, Celsius, and Kelvin. Overlaid on the image is a blue form box containing two dropdown menus. The first dropdown is labeled "Base Temperature" and has three options: "Select One ...", "Fahrenheit (°F)", "Celsius (°C)", and "Kelvin (K)". The second dropdown is labeled "Target Temperature" and also has "Select One ..." as its first option. At the bottom of the form are two buttons: "Convert" and "Reset".

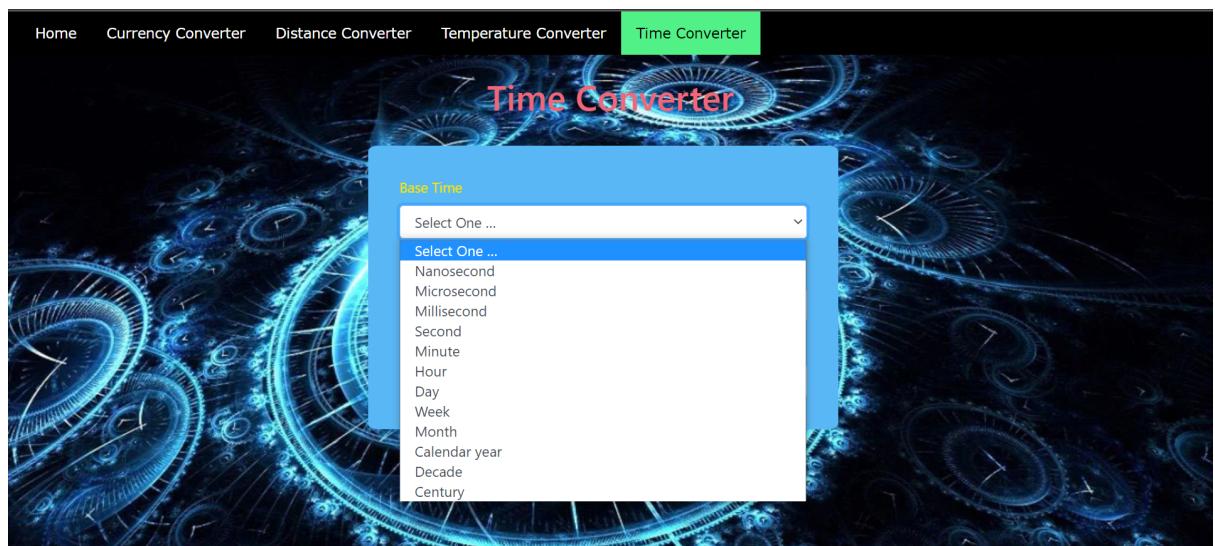
This screenshot shows the same Temperature Converter page as the previous one, but with a conversion result displayed. The background image of the thermometer is still present. The blue form box now contains different dropdown settings: "Celsius (°C)" is selected under "Base Temperature" and "Fahrenheit (°F)" is selected under "Target Temperature". In the "Value to Convert" input field, the number "32" is entered. Below the form, the converted value "32 Celsius = 89.60 °F" is displayed. The "Convert" and "Reset" buttons are also visible at the bottom of the form.

## /\*TimeConvertor.html\*/

This page includes two dropdowns for selecting the base time and target time. It also has one input field for entering the time. At last it has two buttons one is for converting i.e convert button and reset button for resetting all the fields. Validation is also done which shows an appropriate message through alert messages.



There are 12 type options present in the dropdown. These options are arranged in increasing order of their values.





- **Novelty :-**

1. Added more options in dropdown for currency, time and distance converters.
2. Validation is done.
3. Navigation bar included so that users can easily back and forth between the pages.
4. Dropdown options are arranged alphabetically so that users may not waste their time selecting the options.
5. API is used for calculation as backend in Currency converter which is upto date so it helps the users to get the accurate results.

## ● Conclusion :-

As per the given question for the assignment I have tried to build an interactive web based converter which tries to fulfil maximum principles for an UI.

Few famous UI principles are as follows which I have tried to incorporate:

1. **The Reuse Principle :** A template has been built using HTML and CSS has also been linked externally along with JS code, so that later it can be used for some other applications also.
2. **The Structure Principle :** Here a well organised and structured web page has been made.
3. **The Simplicity Principle :** Here a straightforward and simple web page has been made as per the need of the question.
4. **The Visibility Principle :** Here all the important headings have been made bold with some specific different colours so that users can easily identify them.
5. **The Feedback Principle :** Proper instructions have been provided to the user.

Implementing these design principles surely help us improve our design sense and ultimately our user interfaces.