

A Course Based Project Report on
DYNAMIC UNIT CONVERTER

Submitted to the

Department of Information Technology

in partial fulfillment of the requirements for the completion of course

DATA VISUALIZATION

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

Submitted by

B BHARGAVI

23071A1274

CH MOKSHITHA

23071A1278

G SAANVITHA

23071A1285

G SHRESHTA

23081A1289

Under the guidance of

Mr. P. BalaKesava Reddy

Assistant Professor, Department of IT, VNRVJIET



DEPARTMENT OF INFORMATION TECHNOLOGY

**VALLURUPALLI NAGESWARA RAO VIGNANA
JYOTHI INSTITUTE OF ENGINEERING &
TECHNOLOGY**

An Autonomous Institute, NAAC Accredited with 'A++' Grade, NBA

Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O), Hyderabad – 500 090, TS,
India

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**VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI
INSTITUTE OF ENGINEERING AND TECHNOLOGY**

An Autonomous Institute, NAAC Accredited with 'A++' Grade, NBA Accredited for CE, EEE, ME, ECE, CSE, EIE, IT B. Tech Courses, Approved by AICTE, New Delhi, Affiliated to JNTUH, Recognized as "College with Potential for Excellence" by UGC, ISO 9001:2015 Certified, QS I GUAGE Diamond Rated
Vignana Jyothi Nagar, Pragathi Nagar, Nizampet(SO), Hyderabad-500090, TS, India

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CERTIFICATE

This is to certify that the project report entitled "**Dynamic Unit Converter**" is a bonafide work done under our supervision and is being submitted by **B Bhargavi (23071A1274)**, **CH Mokshitha (23071A1278)**, **G Saanvitha (23071A1285)**, **G Shreshta (23071A1289)** in partial fulfilment for the award of the degree of **Bachelor of Technology** in Information Technology, of the VNRVJIET, Hyderabad during the academic year 2023-2024.

Mr.P.BalaKesava Reddy

Assistant Professor, IT

Dr.D.Srinvasa Rao

Associate Professor & HOD, IT

Course based Projects Reviewer

**VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI
INSTITUTE OF ENGINEERING AND TECHNOLOGY**

An Autonomous Institute, NAAC Accredited with 'A++' Grade,
Vignana Jyothi Nagar, Pragathi Nagar, Nizampet(SO), Hyderabad-500090, TS, India

DEPARTMENT OF INFORMATION TECHNOLOGY



DECLARATION

We declare that the course based project work entitled “**Dynamic unit converter**” submitted in the Department of Information Technology, Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology, Hyderabad, in partial fulfilment of the requirement for the award of the degree of **Bachelor of Technology in Information Technology** is a bonafide record of our own work carried out under the supervision of **Mr. P. Balakesava Reddy, Assistant Professor, Department of IT, VNRVJIET**. Also, we declare that the matter embodied in this thesis has not been submitted by us in full or in any part thereof for the award of any degree/diploma of any other institution or university previously.

Place: Hyderabad.

B. Bhargavi
(23071A1274)

CH. Mokshitha
(23071A1278)

G. Saanvitha
(23071A1285)

G . Shreshta
(23071A1289)

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B BHARGAVI	23071A1274
CH MOKSHITHA	23071A1278
G SAANVITHA	23071A1285
G SHRESHTA	23071A1289

TABLE OF CONTENTS

S No	Contents	Page No
1.	Abstract	1
2.	Introduction	2
3.	Source code	3-6
4.	Test cases/output	7-9
5.	Conclusion	10
6.	References	11

ABSTRACT

A unit conversion expresses the same property as a different unit of measurement. For instance, time can be expressed in minutes instead of hours, while distance can be converted from miles to kilometers, or feet, or any other measure of length. Excel's "CONVERT" function is a powerful tool that enables you to perform real-time unit conversions, saving you time and effort. This Excel Unit Converter automates the process, eliminating the need for complicated manual calculations. It's simple. Just enter the measurement you want to convert, specify the original unit of measurement and the unit of measurement you want to convert to, and the "CONVERT" formula will take care of the rest. Plus, the advantage of this Unit Converter is that you can access it from any device, allowing you to have your Excel files with this tool anywhere and anytime.

INTRODUCTION

1.1 PROBLEM DEFINITION

This Excel Unit Converter is an efficient tool that allows you to perform unit conversions quickly and accurately in your Excel spreadsheets. Created in MS Excel, this resource allows you to easily convert between different units of measurement, such as meters, gallons, light years, and pascals, using the powerful "CONVERT" formula.

1.2 OBJECTIVE

It's simple. Just enter the measurement you want to convert, specify the original unit of measurement and the unit of measurement you want to convert to, and the "CONVERT" formula will take care of the rest. Plus, the advantage of this Unit Converter is that you can access it from any device, allowing you to have your Excel files with this tool anywhere and anytime.

Unit Converter for Excel is an adding for the Microsoft Excel to perform various conversions between many types of measurement units. The units are grouped in the following categories: Dimensions and capacity, Energy and power, Mechanics, Hydraulics, Heat, Electricity, Magnetism, Light and sound, Radiation. The online unit converter allows accurately, quickly, and for free convert common units of measurement. Enter your value in the input box and select from.

2. SOURCE CODE

CREATE AND FORMAT TABLES:

1. Select a cell within your data.
2. Select **Home > Format as Table**.
3. Choose a style for your table.
4. In the **Create Table** dialog box, set your cell range.
5. Mark if your table has headers.
6. Select **OK**.

DEFINING NAME OF LISTS:

In Excel, you can define names for lists to make it easier to reference and work with specific ranges of cells. Here's how you can define names for lists:

1. Using the Name Box
2. Select the Range:
3. Select the range of cells that you want to name.
4. Go to the Name Box:
5. The Name Box is located to the left of the formula bar. Click on the dropdown arrow in the Name Box.
6. Enter a Name:
7. Type the desired name for your list and press Enter.

DATA VALIDATION:

Data validation in the context of spreadsheets, such as Microsoft Excel, refers to the process of setting rules or criteria to control the type and format of data that can be entered into a cell or range of cells. This helps ensure that the data in your spreadsheet is accurate, consistent, and meets specific requirements. Data validation is commonly used to prevent errors, enforce data integrity, and make data entry more efficient.

The settings tab is where you enter the validation criteria. There are eight options available to validate for user input:

- Any Value - It removes any existing data validation.
- Whole Number - It allows only whole numbers. For example, you can specify that the user must enter the number between 0 to 30.
- Decimal - The user must enter a number with decimal values.
- List - The user will have to create a drop-down list to choose from.
- Date - The user will have to enter the date format.
- Time - The user should enter a time.
- Text Length - It validates input based on the length of the data.
- Custom - It validates the user input using a custom formula.

Basic steps for data validation:

1. Select the Cell or Range:
2. Click on the cell or select the range of cells where you want to apply data validation.
3. Go to the Data Tab:
4. Navigate to the "Data" tab on the Excel ribbon.
5. Click on Data Validation:
6. In the "Data Tools" group, click on "Data Validation."
7. Choose Validation Criteria:
8. In the "Data Validation" dialog box, go to the "Settings" tab.
9. Choose the type of data validation you want. Common criteria include whole numbers, decimals, dates, times, text length, custom formulas, and more.
10. Configure Validation Settings:
11. Depending on the chosen criteria, configure additional settings such as minimum and maximum values, allowed dates, or custom formulas.

DROP-DOWN LIST:

A drop-down list, also known as a dropdown menu or combo box, is a user interface control that allows users to select one item from a predefined list of options. If you want to create a dependent drop-down list in Excel, where the options in one drop-down list depend on the selection made in another drop-down list, you can use a combination of named ranges and data validation.

Set Up Data Validation for the Main Category

1. Select the Cell for the Main Category:
2. Select the cell where you want the main category drop-down.
3. Go to Data Validation:
4. Go to the "Data" tab, click on "Data Validation."
5. Choose List as Criteria:
6. In the "Data Validation" dialog box, choose "List" as the criteria.
7. In the "Source" field, enter =Categories.

VLOOKUP:

The VLOOKUP function in Excel is a powerful tool for searching and retrieving data from a table. It stands for "Vertical Lookup" and is commonly used when you have a table of data and want to find a specific value in the leftmost column of that table.

Syntax:=VLOOKUP(lookup_value,table_array,col_index_number,[range_lookup]
)

INDIRECT:

The INDIRECT function in Excel is used to indirectly reference a cell or range of cells. It takes a text string argument that specifies the cell or range reference. The contents of the referenced cell or range are then returned or used as the reference for another function.

Syntax:=INDIRECT(ref_text,[a1])

CONVERT:

To convert data from one unit or format to another in Excel, there are various functions you can use depending on your specific conversion needs.

Syntax: =CONVERT(number,from_unit,to_unit)

IFERROR:

IFERROR function to trap and handle errors in a formula. IFERROR returns a value you specify if a formula evaluates to an error.

Syntax: =IFERROR(value,value_if_error)

MACRON:

Macros are a set or sequence of instructions that perform as and when required by the user. Initially, a macro is to be recorded. Then the macro is being executed in order to perform a set of a predefined set of commands in Microsoft Excel. Macros save a huge amount of time in performing a set of repetitive actions.

3. TEST CASES/ OUTPUT

3.1 Test case:1

File Home Insert Page Layout Formulas Data Review View Help WPS PDF

Clipboard Font Alignment Number Conditional Formatting Styles Cell Styles Insert Delete Sort & Filter Find & Select Add-ins Analyze Data

SECURITY RISK Microsoft has blocked macros from running because the source of this file is untrusted. Learn More

E7

1 2 3 4 5 6 7 8 9 10 11

Select MEASUREMENT from the drop down menu → Volume CLEAR SELECTION

Type a number of quantity to convert → 1 1000

Select UNITS to convert from, using the drop down → Liter Milliliter

End result: converted quantity

Select UNIT to convert to, using the drop down

Sheet1

3.2 Test case : 2

File Home Insert Page Layout Formulas Data Review View Help WPS PDF

Clipboard Font Alignment Number Conditional Formatting Styles Cell Styles Insert Delete Sort & Filter Find & Select Add-ins Analyze Data

SECURITY RISK Microsoft has blocked macros from running because the source of this file is untrusted. Learn More

E7

1 2 3 4 5 6 7 8 9 10 11

Select MEASUREMENT from the drop down menu → Length CLEAR SELECTION

Type a number of quantity to convert → 1 3

Select UNITS to convert from, using the drop down → Yard Foot

End result: converted quantity

Select UNIT to convert to, using the drop down

Sheet1

Ready Accessibility: Investigate

3.3 Test case :3

File Home Insert Page Layout Formulas Data Review View Help WPS PDF

Clipboard Font Alignment Number Styles Cells Editing Add-ins

SECURITY RISK Microsoft has blocked macros from running because the source of this file is untrusted. Learn More

E7 Kilogram

1 2 3

Select MEASUREMENT from the drop down menu → Mass CLEAR SELECTION

Type a number of quantity to convert → 1 0.028349523 ← End result:converted quantity

Select UNITS to convert from,using the drop down → Ounce Kilogram ← Select UNIT to convert to, using the drop down

Sheet1

3.4 Test case:4

File Home Insert Page Layout Formulas Data Review View Help WPS PDF

Clipboard Font Alignment Number Styles Cells Editing Add-ins

SECURITY RISK Microsoft has blocked macros from running because the source of this file is untrusted. Learn More

E7 Second

1 2 3

Select MEASUREMENT from the drop down menu → Time CLEAR SELECTION

Type a number of quantity to convert → 1 60 ← End result:converted quantity

Select UNITS to convert from,using the drop down → Minute Second ← Select UNIT to convert to, using the drop down

Sheet1

Ready Accessibility: Investigate

CONCLUSION

The unit converter project in Excel provides a user-friendly and efficient tool for converting various units across different metrics. Its intuitive design and accurate calculations make it a valuable resource for simplifying complex conversions. By utilizing Excel's functionalities, this project not only meets the diverse needs of users but also showcases the versatility of spreadsheet applications in practical applications.. By creating a user-friendly interface that allows users to seamlessly convert between different units, the converter simplifies complex calculations and promotes a more streamlined workflow. Its dynamic nature ensures adaptability to various scenarios and requirements, providing users with the flexibility they need. Whether dealing with length, weight, volume, or any other unit, this Excel-based converter not only saves time but also reduces the likelihood of errors, contributing to a more reliable and productive data analysis process. As we conclude our exploration of the dynamic unit converter, it becomes evident that this Excel tool is a valuable asset for anyone working with multiple units, offering a user-friendly solution to the intricate challenges of unit conversion.

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