



TITLE OF PROJECT REPORT

UNIT CONVERSION SYSTEM

Group No - 12

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Introduction

The **Unit Conversion System** is a simple C-based application designed to help users convert between different units of measurement. This project focuses on implementing conversions in various unit categories such as length, weight, temperature, speed, data and time. The application provides a **user-friendly** console interface, allowing users to select the units they wish to convert and the corresponding value. The system then calculates and displays the converted result.

❖ **Work:**

This project involves creating a tool that can handle multiple unit conversions and perform BMI calculations. The tool is designed with an interactive menu-driven approach, offering the user a smooth experience in converting various physical quantities and calculating their Body Mass Index (BMI).

❖ **Inspiration:**

Inspired by the sleek and efficient conversion system found in the **Xiaomi phone calculator**, this project aims to bring that same ease and functionality to a simple, standalone unit conversion tool.

❖ **Objective:**

The goal of this project is to develop a user-friendly, menu-driven program that provides accurate conversions for different units of area, time, data, and BMI. The program helps the user with:

- Converting area units such as square kilometers, hectares, and square meters.
 - Converting time units like hours, minutes, and seconds.
 - Converting data units such as bytes, kilobytes, megabytes, etc.
 - Calculating and classifying BMI based on height and weight.
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Literature Review / Background Study

Many conversion tools exist online or as standalone applications. Here are a few examples:

- **Unit Converter (Android App):** This app offers conversion between many different units including area, distance, temperature, and volume. It is widely used on smartphones and offers a comprehensive list of units.
- **Online Unit Converters:** Websites like unitconverters.net and convertunits.com offer a broad range of unit conversions. These tools work efficiently for converting between various metric, imperial, and other international systems.

However, this project distinguishes itself by integrating unit conversion with BMI calculation, providing an all-in-one solution. The focus on a simple menu-driven console interface makes it more accessible for users without internet access or those looking for a lightweight tool.

Features

The project includes the following key features:

- **Area Conversion:** Converts between square kilometers, hectares, and square meters.
 - **Time Conversion:** Allows the user to convert between hours, minutes, and seconds, with the added ability to convert seconds into the "Hour:Minute" format.
 - **Data Conversion:** Converts between data units such as bytes, kilobytes, megabytes, gigabytes, and terabytes.
 - **BMI Calculator:** Allows the user to calculate and classify their Body Mass Index (BMI) based on height (cm) and weight (kg).
 - **Interactive Menu System:** A console-based menu system guides the user through different conversion and calculation options.
 - **Clear Output:** Displays results with the appropriate units and classifications (BMI category: Underweight, Overweight, etc.).
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Code Implementation

Our **Unit Conversion System** offers the following conversion options through a clear, step-by-step console interface:

1. Main Menu

```

**_**_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*
=====
=                                WELCOME                               =
=                                TO                                    =
=                                UNIT                                   =
=                                CONVERSION                             =
=                                SYSTEM                                 =
=====
**_**_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*

                                MAIN MENU

=====
[1] Length Conversion
[2] Mass Conversion
[3] Area Conversion
[4] Time Conversion
[5] Data Conversion
[6] BMI Calculator
[0] Exit
=====
Enter Your Choice : 1

```

2. Length conversion

```
=====
```

```
** Length Conversion **
```

```
=====
```

```
[1] [Kilometer >---> Meter]
```

```
[2] [Meter >---> Kilometer]
```

```
[3] [Centimeter >---> Meter]
```

```
[4] [Meter >---> Centimeter]
```

```
[5] [Kilometer >---> Centimeter]
```

```
[6] [Centimeter >---> Kilometer]
```

```
[0] ...Main Menu...  
=====
```

```
Enter A Option: 1
```

```
[1] Kilometer -To- Meter  
  
*****
```

```
Enter Kilometer : 10
```

```
10.00 Kilometer = 10000.00 Meter  
  
*****
```

4. Area Conversion

```
=====
** Area Conversion **
=====
[1] [Square_Kilometer] To [Hectare]
[2] [Hactare] To [Square_Kilometer]
[3] [Square_Kilometer] To [Square_Meter]
[4] [Square_Meter] To [Square_Kilometer]
[5] [Hectare] To [Square_Meter]
[6] [Square_Meter] To [Hectare]
[0] ...Main Menu...
=====
Enter A Option: 5

[5] Hectare -To- Square_Meter
*_*=*=*=*_*=*=*=*_*=*=*=*_*=*=*=*_*=*=*=*_*=*=*=*_*=*=*=*_*=
Enter Hectare : 102

102.0000 Hectare = 1020000.00 Square_Meter
*_*=*=*=*_*=*=*=*_*=*=*=*_*=*=*=*_*=*=*=*_*=*=*=*_*=*=*=*_*=
```

3. Return Main menu

```
Enter A Option: 0  
  
Return to Main Menu...!  
*_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**  
  
MAIN MENU  
=====
```

```
[1] Length Conversion  
[2] Mass Conversion  
[3] Area Conversion  
[4] Time Conversion  
[5] Data Conversion  
[6] BMI Calculator  
[0] Exit  
=====
```

```
Enter Your Choice : 2
```


- **Console-based Interface:** The tool uses a simple console-based interface, which may not be very user-friendly for those unfamiliar with terminal-based applications.

Future Scope:

- **GUI Implementation:** In the future, the project can be extended to use a graphical user interface (GUI), making it more intuitive for the user.
- **Mobile Application:** A mobile version of this tool could be developed for both Android and iOS platforms.
- **Additional Units:** More units (like temperature, volume, etc.) could be added to the conversion system, expanding the tool's functionality.
- **Input Validation:** Implementing error-handling and input validation to ensure the user inputs valid values.

Conclusion

In conclusion, this project demonstrates a simple yet effective unit conversion and BMI calculation tool. The program is easy to use, performs accurate conversions, and provides BMI classification, making it a useful utility for anyone in need of quick conversions. Although the program has some limitations, it serves as a great starting point for further development and enhancement.

References

- **Unit Conversion Websites:**
 - unitconverters.net
 - convertunits.com
- **BMI Calculation References:**

Centers for Disease Control and Prevention (CDC):
<https://www.cdc.gov/>