Beta Presentation
Machine Learning for Numeracy Training

The Capstone Experience
Team Anthropocene Institute

Xukai Fang
Ricky Horan
Daniel Passos
Christian Vaughan
Matthew McDerment
Phumapiwat Chanyutthagorn

Department of Computer Science and Engineering
Michigan State University

Spring 2023
Project Overview

- Many people lack numeracy skills
- Guided learning to provide users a basic foundation
- Engaging games to reinforce learning and provide a fun experience
- Help create a better informed public
System Architecture
Hangman Versus

Metric Hangman

Lives: 💔💔💔💔💔 saline

10^-6

Question: 1/10

Opponent

Lives: 💔💔💔💔💔 saline
Estimates

Questions

Estimates

Lives: 3

If the average American driver spends $1340 per year on car insurance, and there are 232.8 million registered drivers in the U.S., what is the total amount of insurance costs for Americans?

Answer

Question 1

Ask AI
Learn Home

Learn Numeracy

Welcome bob! The world of numbers awaits!

Big Numbers

3 / 5

Significant Figures

Word Form Conversions

Exponential Growth

Scientific Notation

0 / 2

Intro To Scientific Notation

Converting To And From Scientific Notation
Metric Prefix Module

Metric prefixes are a set of symbols that are added to the front of the base unit of measurement to express values that are either too small or too large to be conveniently expressed in terms of the base unit. These prefixes indicate a multiple or a fraction of the base unit.

The most commonly used metric prefixes are kilo, hecto, deca, deci, centi, and milli. For example, a kilometer is equal to 1000 meters, and a millimeter is equal to 0.001 meters. However, there are many more prefixes used to describe dramatically large or small numbers. The table below contains all prefixes with values that range from $10^{24}$ to $10^{-24}$.

<table>
<thead>
<tr>
<th>Metric Prefix</th>
<th>Symbol</th>
<th>Value</th>
<th>Scientific Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>yotta</td>
<td>Y</td>
<td>1,000,000,000,000,000,000,000,000,000</td>
<td>$1 \times 10^{24}$</td>
</tr>
<tr>
<td>zetta</td>
<td>Z</td>
<td>1,000,000,000,000,000,000,000,000,000</td>
<td>$1 \times 10^{21}$</td>
</tr>
<tr>
<td>exa</td>
<td>E</td>
<td>1,000,000,000,000,000,000,000,000,000</td>
<td>$1 \times 10^{18}$</td>
</tr>
<tr>
<td>peta</td>
<td>P</td>
<td>1,000,000,000,000,000,000,000,000,000</td>
<td>$1 \times 10^{15}$</td>
</tr>
</tbody>
</table>
What’s left to do?

• Features
• Stretch Goals
  ▪ Expand on user statistics
  ▪ Versus mode for Estimates
• Other Tasks
  ▪ Refine the UI
  ▪ More instructions for games
Questions?