COMP0000J Intro to Temporal Engineering

Homework: A Simple Time Machine

Any Student

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Abstract

This project implements a time machine as required by *COMP0000J Intro to Temporal Engineering*.

Question 1.

Formulae for building this time machine.

(a) **Common Operations & Fractions**

$$x + y - z = \frac{a}{b} \cdot \sqrt{c^2 + d^2} \tag{1}$$

$$\sum_{i=1}^{n} x_i^2 = \int_0^\infty e^{-t}\, dt = \lim_{x \to \infty} \frac{1}{x} \tag{2}$$

$$\alpha + \beta = \gamma \quad \Delta\theta \neq \pi \quad \lambda \in \mathbb{R} \tag{3}$$

$$\tag{4}$$

(b) **More Formulae**

$$A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}, \quad \det(A) = \begin{vmatrix} a & b \\ c & d \end{vmatrix} = ad - bc$$

and

$$f'(x) = \frac{df}{dx} = \frac{\partial f}{\partial x}, \quad \nabla \cdot \vec{F} = \frac{\partial F_x}{\partial x} + \frac{\partial F_y}{\partial y}$$

$$A \cup B \cap C \subseteq \mathbb{N}, \quad x \in A \implies x \notin B, \quad \forall x \exists y$$

(c) Also let's write some inline formulae like $\sin(\theta) + \cos^2(\phi) = \log(x) + \ln(y) + \binom{n}{k}$.

Question 2. *Propositions, Theorems and Principles.*

You can put your propositions, theorems and principles.

> **Proposition 1.** Time is not fixed.

> **Theorem 2.** Time travel is possible.

> **Principle 3.** Time travel is dangerous.

There are also some predefined boxes with classical colors where you can put your notes.

> **Green Note**
>
> Temporal Engineering is the study of time travel and its implications. It is a very interesting field of study. There are abundant online resources available for learning temporal engineering.

> **Blue Note**
>
> You can make a lot of money after becoming a temporal engineer. The average salary of a temporal engineer is $100,000,000 per year.

> **Yellow Note**
>
> There are many types of temporal engineer, such as frontend time machine engineer, backend time machine engineer, and full-stack time machine engineer. You can also specialize in time machine design, time machine testing, or time machine maintenance. DevOps time machine engineer is also a popular choice.

Question 3. *Coding Question.*

This is the implementation of the "controller" code of the time machine.

```python
def time_machine_controller():
    # This is the controller code of the time machine
    print("Time machine controller is running...")
    print("Please enter the year you want to travel to:")
    year = input()
    print(f"Travelling to {year}...")
    print("Time machine has arrived at the destination.")
    print("ERROR: Time machine has malfunctioned.")
    print("ERROR: You are now stuck in the year 2099.")
    print("ERROR: GOOD LUCK!")
```

Listing 1: Time Machine Demo

Question 4.

Maybe you would like a binary tree.
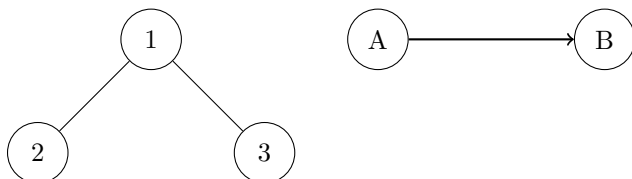
Question 12.

By running the *Time Machine*, we jump to question 12 directly!