Introduction

Dynamic Core of Double Pendulum in Python

```
def __integrate(self, dt: float) -> None:
    """
    依據雙擺當前的狀態，對該雙擺進行單一時步的積分。

    Args - dt(float):時步步長。
    """
    theta1dotdot = ((m2*g*sin(theta2)*cos(theta1-theta2))-(m2*sin(theta1-theta2)
    *(l1*theta1dot*theta1dot*cos(theta1-theta2)+l2*theta2dot*theta2dot))-((m1+m2)
    *g*sin(theta1)))/(l1*(m1+m2*(sin2(theta1-theta2))))
    theta2dotdot = (((m1+m2)*(l1*theta1dot*theta1dot*sin(theta1-theta2)-g*
    sin(theta2)+g*sin(theta1)*cos(theta1-theta2)))+(m2*l2*theta2dot*theta2dot*
    sin(theta1-theta2)*cos(theta1-theta2)))/(l2*(m1+m2*(sin2(theta1-theta2))))

    theta1dot = theta1dot + theta1dotdot*dt
    theta2dot = theta2dot + theta2dotdot*dt

    theta1 = theta1 + theta1dot*dt
    theta2 = theta2 + theta2dot*dt
    ...
```

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Energy Constrain in Dynamic Core

Result of simulation