Assignment-10

Problem-1: Solve the following set of differential equations using the 4th order Runge-Kutta method assuming that at $x = 0$, $y_1 = 4$ and $y_2 = 6$. Consider the interval from 0 to 4 with a step size of 0.5. Compare your results with the Euler's method, Heun's method and the exact result. Also compare the error in all the methods.

$$\frac{dy_1}{dx} = -0.5y_1 \quad (1)$$

$$\frac{dy_2}{dx} = 4 - 0.3y_2 - 0.1y_1 \quad (2)$$