$$y' = \frac{x}{\sqrt{x^2+1}}, \quad y(0) = 2$$

Integrate

$$y = \int \frac{x}{\sqrt{x^2+1}}\,dx = \frac{1}{2}\int \frac{2x}{\sqrt{x^2+1}}\,dx$$

Let $u = x^2+1$, $du = 2x\,dx$

$$\rightarrow y = \frac{1}{2}\int \frac{du}{\sqrt{u}} = u^{\frac{1}{2}} + C = \sqrt{x^2+1} + C$$

Apply initial condition:

$$y(1) = \sqrt{1} + C = 2$$

$$C = 1$$

so, $\boxed{y = \sqrt{x^2+1} + 1}$