Compute $\lim_{x\to\infty} \frac{x+\cos x}{x}$

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$\frac{x+\cos x}{x} \to \frac{\infty}{\infty}$ and so is an indeterminate form.

$\Rightarrow \lim_{x\to\infty} \frac{x+\cos x}{x} = \lim_{x\to\infty} \frac{1-\sin x}{1}$ but the limit does not exist.

$$\lim_{x\to\infty} \frac{x+\cos x}{x}$$

$$= \lim_{x\to\infty} 1 + \frac{\cos x}{x}$$

$$= 1 + 0$$

$$= 1$$