Many engineering design equations make use of a series solution to obtain the value of a variable. One simple example is the infinite series solution for the sine and cosine of an angle. The sine and cosine of an angle \( z \) in radians can be computed as follows:

\[
\sin(z) = z - \frac{z^3}{3!} + \frac{z^5}{5!} - \frac{z^7}{7!} + \cdots \\
\cos(z) = 1 - \frac{z^2}{2!} + \frac{z^4}{4!} - \frac{z^6}{6!} + \cdots
\]

Write a program that asks the user to input an angle, and the number of terms to be included in the series solution of the sine and cosine. Print out a table of the sine and cosine as it changes with each term in the series being included. At the bottom of the table, print out the values as returned by the intrinsic functions \( \sin \) and \( \cos \).

Try out your program for the angle of 1.0 radian. The first 20 decimal places of the exact solutions are

\[
\sin(1.0) = 0.84147098480789650665 \\
\cos(1.0) = 0.54030230586813971740
\]

Play around with the program enough so that you can see the error in the solution decrease as more terms are added to the series expression (this is called truncation error). You may notice that if the number of terms included is too large, the error in the solution increases due to the finite precision math arithmetic used by the computer (this is called roundoff error).