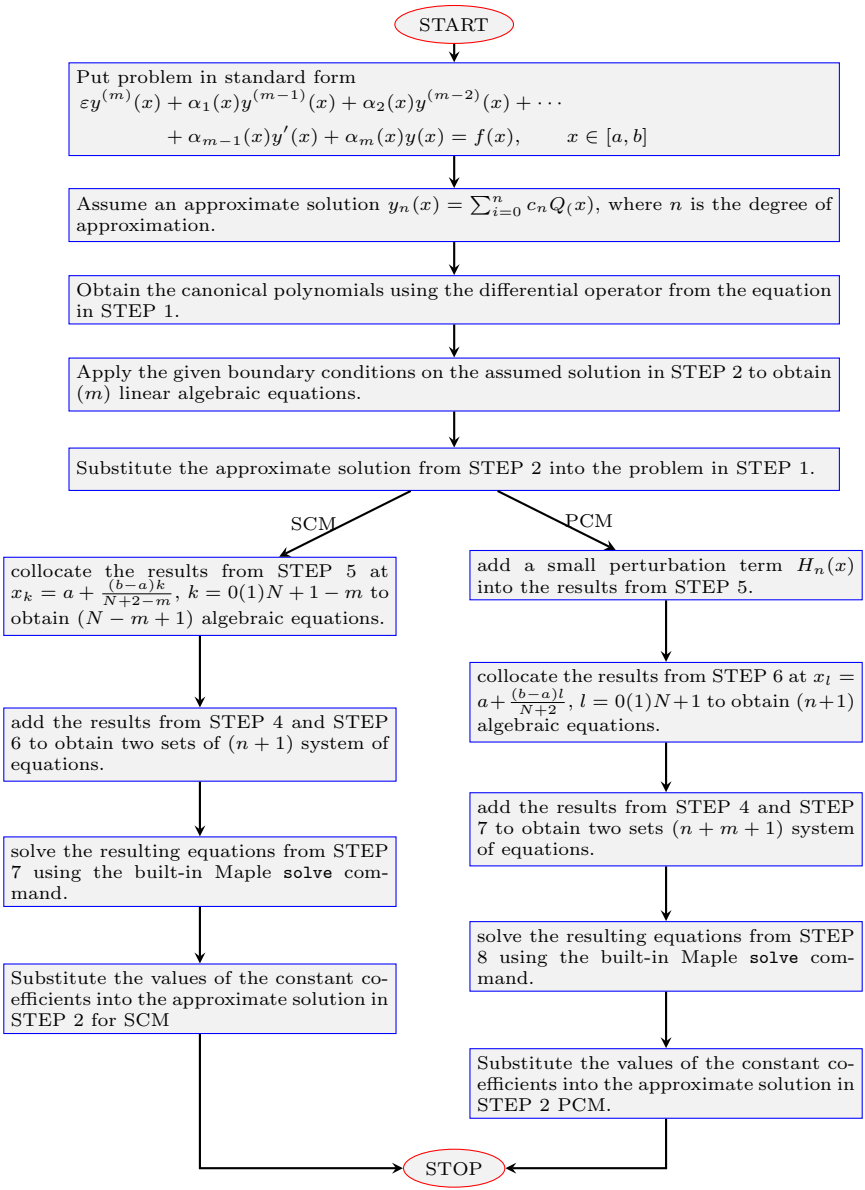
START
Put problem in standard form
$\varepsilon y^{(m)}(x) + \alpha_1(x)y^{(m-1)}(x) + \alpha_2(x)y^{(m-2)}(x) + \cdots$
$+ \alpha_{m-1}(x)y'(x) + \alpha_m(x)y(x) = f(x), \qquad x \in [a, b]$
Assume an approximate solution $y_n(x) = \sum_{i=0}^{n} c_n Q_(x)$, where n is the degree of approximation.
Obtain the canonical polynomials using the differential operator from the equation in STEP 1.
Apply the given boundary conditions on the assumed solution in STEP 2 to obtain (m) linear algebraic equations.
Substitute the approximate solution from STEP 2 into the problem in STEP 1.
SCM
PCM
collocate the results from STEP 5 at $x_k = a + \frac{(b-a)k}{N+2-m}$, $k = 0(1)N + 1 - m$ to obtain $(N - m + 1)$ algebraic equations.
add the results from STEP 4 and STEP 6 to obtain two sets of $(n + 1)$ system of equations.
solve the resulting equations from STEP 7 using the built-in Maple solve command.
Substitute the values of the constant coefficients into the approximate solution in STEP 2 for SCM
add a small perturbation term $H_n(x)$ into the results from STEP 5.
collocate the results from STEP 6 at $x_l = a + \frac{(b-a)l}{N+2}$, $l = 0(1)N+1$ to obtain $(n+1)$ algebraic equations.
add the results from STEP 4 and STEP 7 to obtain two sets $(n + m + 1)$ system of equations.
solve the resulting equations from STEP 8 using the built-in Maple solve command.
Substitute the values of the constant coefficients into the approximate solution in STEP 2 PCM.
STOP