OOP Assignment - 4

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Due on 21 Oct 2020

1 Find Jacobian matrix for given functions at a point

- Update AD.h for all operators and mathematical functions which are not defined. (See AD.h)
- Implement a function in AD class to find Jacobian matrix of given functions.

SAMPLE RUN - 1:
Input:
3
$x \quad y \quad z$
$3 \quad -6 \quad 1$
$x * y * z + sin(x * y) * 2 + x * y * cos(z)$
$x * x + y * y + z * z + x * y * z$
$x * y + y * z + z * x$
Output:
3.10928 1.16598 44.1953
−2 13 22
7 2 11

First line of input is number of independent variables
Second line is Identifiers for variables
Third line is values for variables at which Jacobian matrix should evaluated
Line 4-6 for functions for which Jacobian need to find.
Output is a $n \times n$ Jacobian matrix.

Programming instructions and limitations:

- We are providing two ways of doing this assignment: one is manual checking, other one is automatic checking of test cases.
- Assignment-5(a) for automatic checking and Assignment-5(b) for manual checking.
- You can choose either of them.
- You can modify the main() function but this must be elegant and user friendly.
- Number of functions should be in the range of $1 \leq n \leq 100$