The minimart problem

A company plans to install a series of unstaffed mini-markets in a rural area. This way, citizens that live far from conventional stores may buy their groceries without driving. Specifically, the company wants to serve a set of n houses whose coordinates in kilometers are described by parameters `Cx` and `Cy`.

Some, but not all of the houses, gave permission to the company to build a mini-market on their property in exchange for a small compensation. Whether or not it is possible to build a mini-market at house i is described by parameter `usable[i]`.

All things considered, the cost of building a mini-market at house i is `Dc[i]`. The company wants to plan the construction of mini-markets so that each house is at most `r` kilometers away (Euclidean distance) from a mini-market, and the total construction cost is minimized. Develop a MILP formulation of the problem and implement it in Python using the MIP module, then upload your code on Webeep.

Only one file can be uploaded for each group. The file uploaded **must** be named `XYZ1_XYZ2_XYZ3.py` where XYZ is the person code of each member of the group (it can be `XYZ1_XYZ2.py` if the group is of two people and `XYZ1.py` if it's a one-person group).

If you prefer to work with Jupyter notebooks, just remember to select "Download as → Python" when saving.

The script must import all symbols from the file `minimart_data.py`, a few examples of which are published on Webeep (rename them to `minimart_data.py` before running your script), and, after finding an optimal solution, it must print out the string "`RESULT: `" followed by the objective function value and the number of open mini-markets. There might be more output from your script, but if it does not print the above line, no points will be given. A template of the script is on Webeep.