```cpp
 1: #ifndef ED_HPP_
 2: #define ED_HPP_
 3: #include <vector>
 4: #include <string>
 5:
 6:
 7: class ED{
 8: public:
 9:         ED(std::string a, std::string b);
10:         ~ED();
11:
12:         void perimeterCases();
13:         int penalty(char a, char b);
14:         int min(int& x, int& y, int& z);
15:         int optimalDistance();
16:         std::string Alignment();
17:
18:         friend std::ostream& operator <<(std::ostream& left, const ED& ed
);//displays grid
19: private:
20:         unsigned int m, n;
21:         std::string x, y;
22:         int **grid;
23: };
24:
25: #endif
```