

Smart Phone App Programming Project

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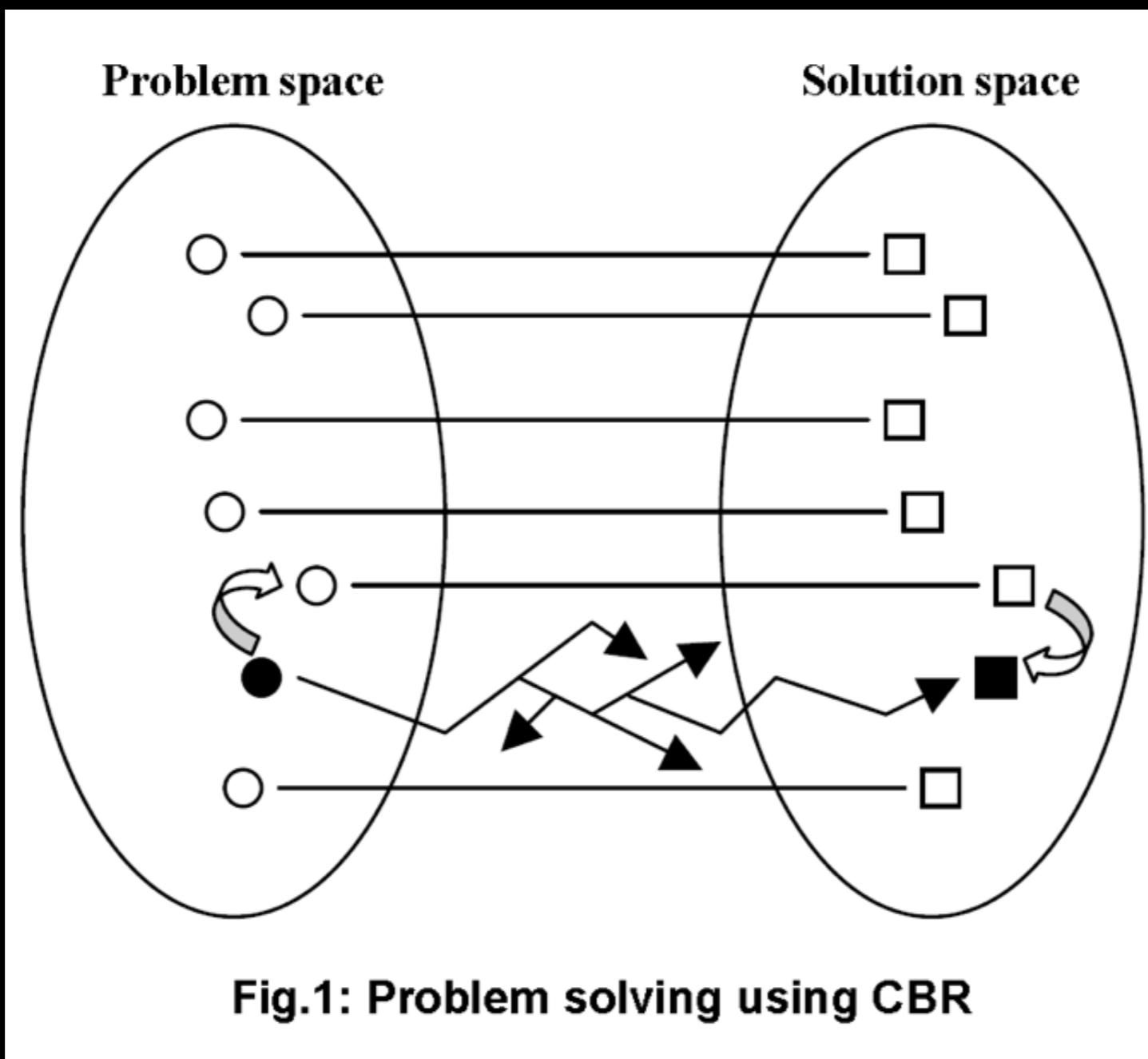
Machine Learning - Case Based Reasoning

Deal with the data
on the Android App

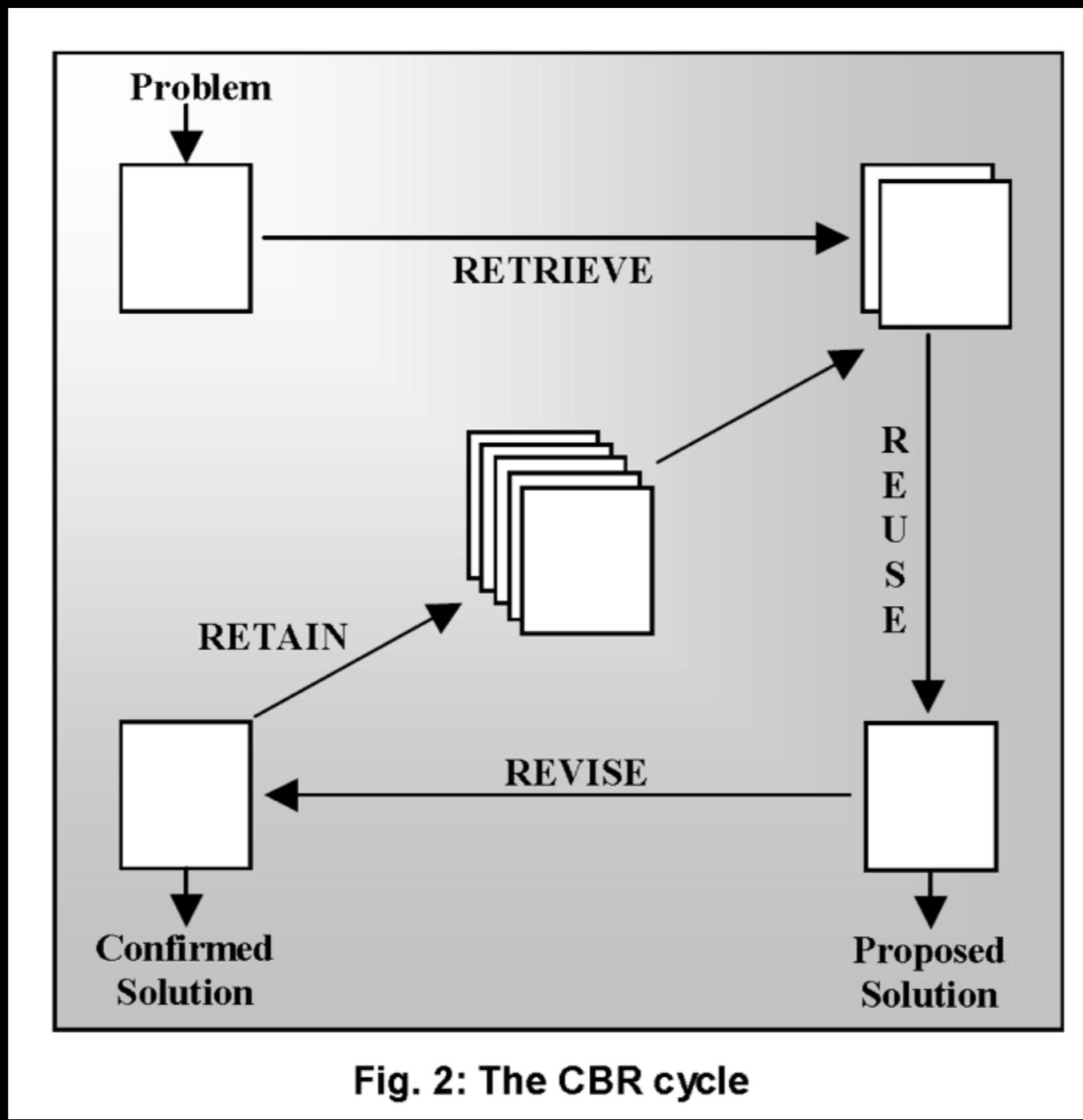
Why CBR?

- Reasoning by remembering, previously solved problems (cases) are used to suggest solutions for novel but similar problems

Problem Solving Using CBR?



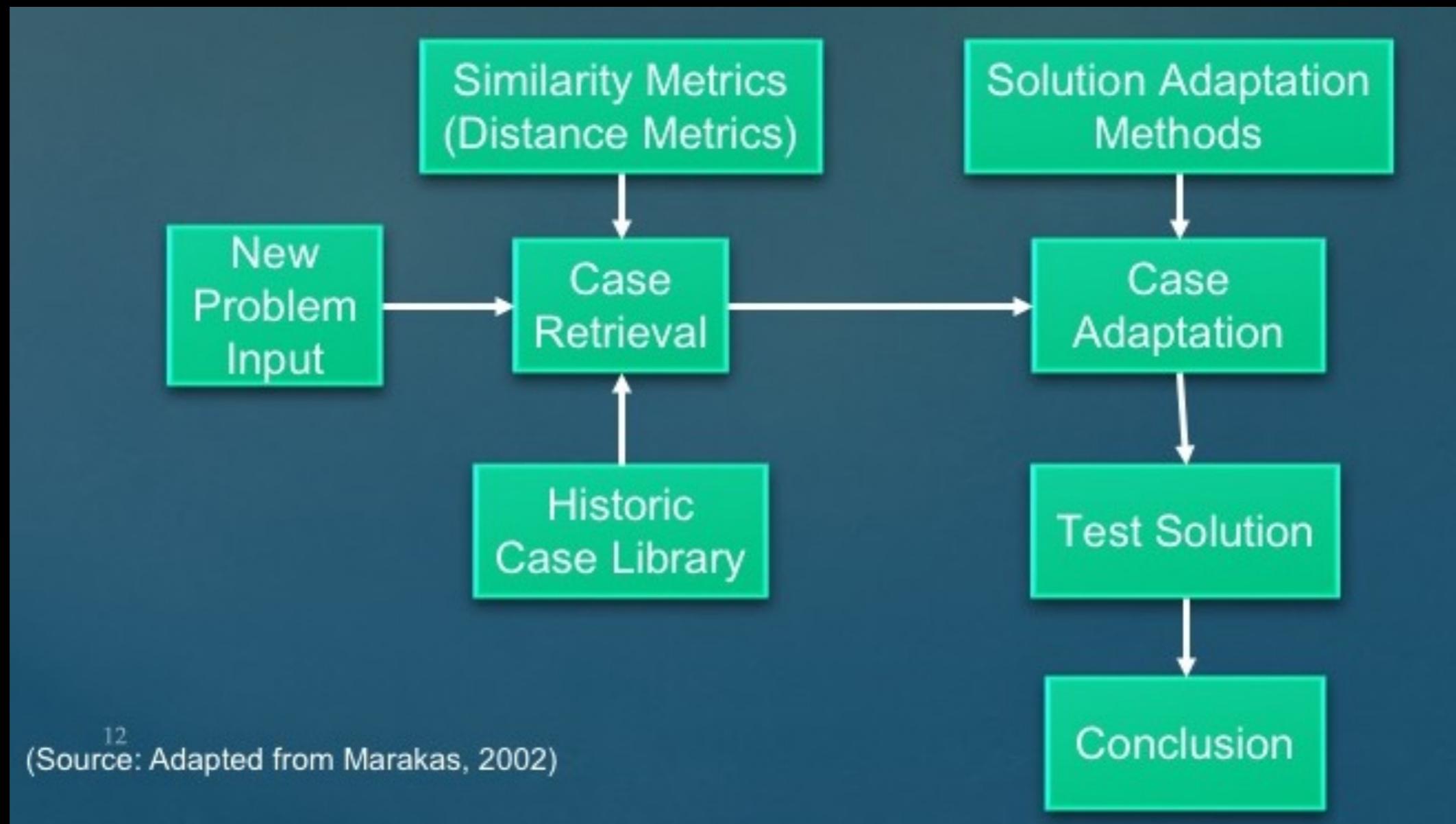
CBR Cycle: Aamodt & Plaza (1994)



The CBR Process

- Find relevant cases in storage that have solved problems similar to the current problem (use similarity metrics).
- Adapt the previous solutions to fit the current problem context.

The CBR Process



My task

- There is a data set about the hotels and trips information. I need to find out the best trip for my customers.
- The input is the idea about his/her trip condition.
- The output is the best trip sample in the data set.

My solution

Algorithm 1 (k -Nearest Neighbour algorithm for discrete-valued function)

Training Algorithm:

For each example $\langle x, f(x) \rangle$, add the example to the list *training_examples*

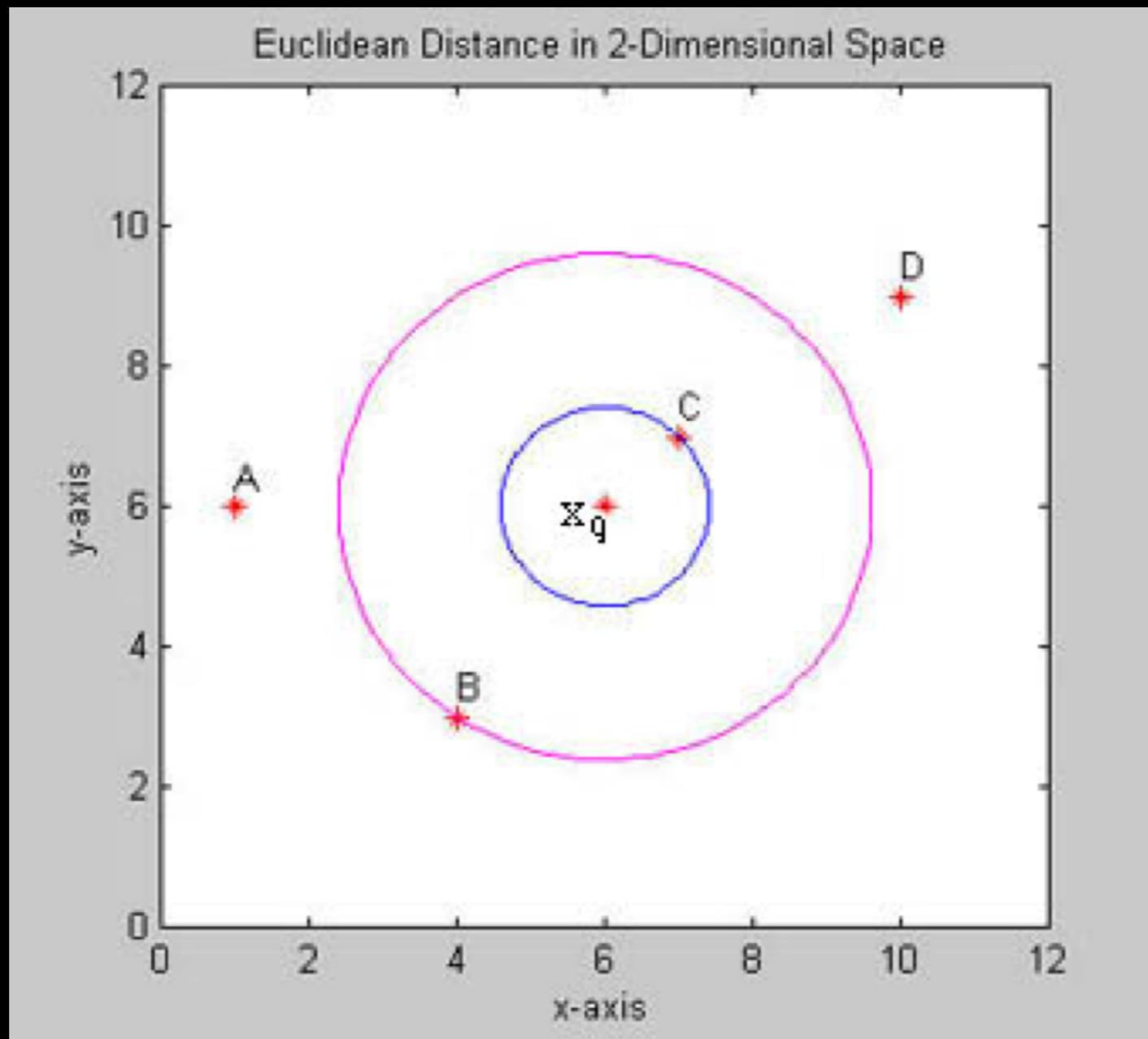
Classification Algorithm:

- Given a query instance x^q to be classified,
 - Step 1:** Let x^1, x^2, \dots, x^k denote the k instances from the *training_examples* that are nearest to x^q ,
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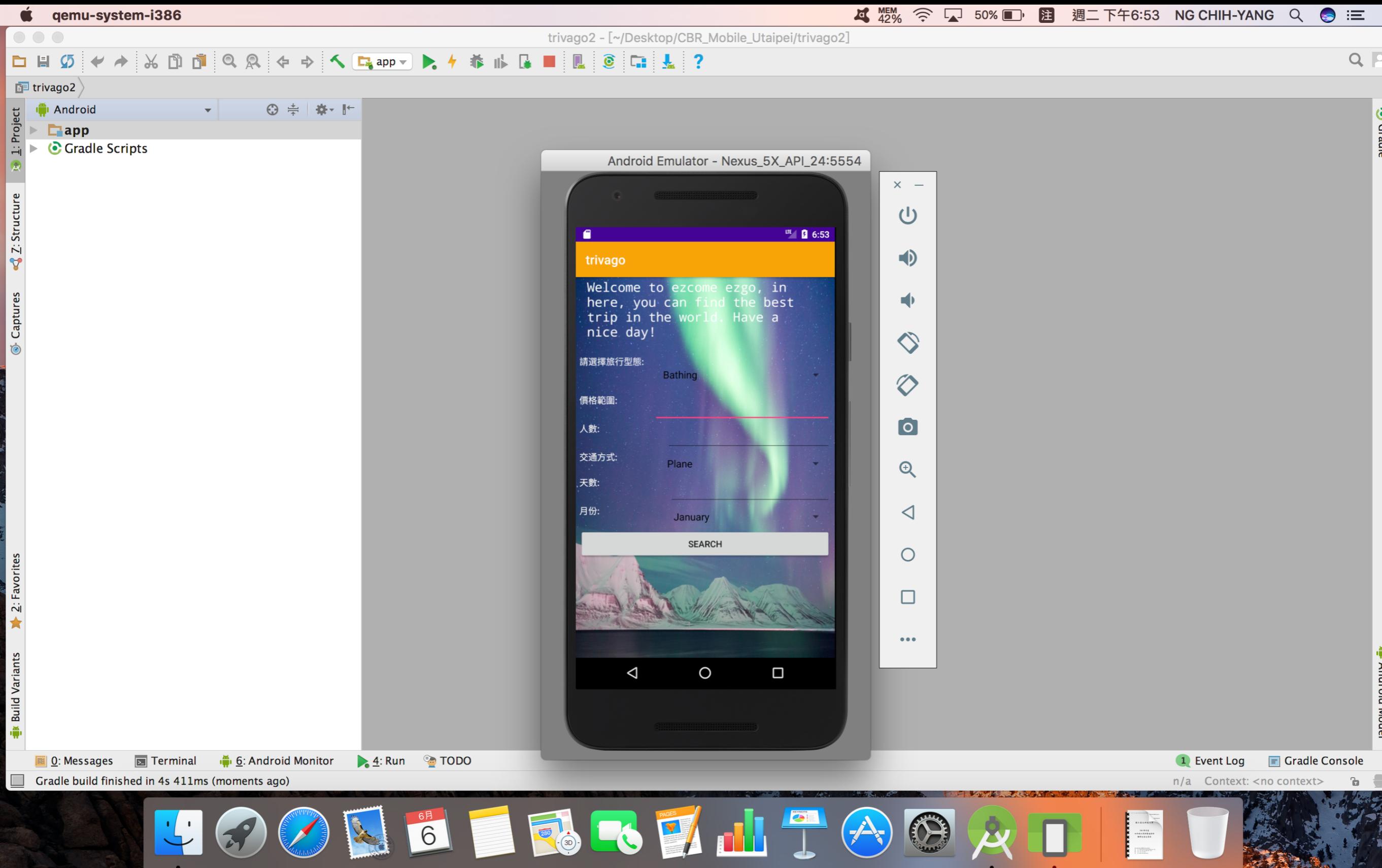
Step 2: Return, $\hat{f}(x_q) \leftarrow \operatorname{argmax}_{v \in V} \sum_{i=1}^{i=k} \delta(v, f(x_i))$

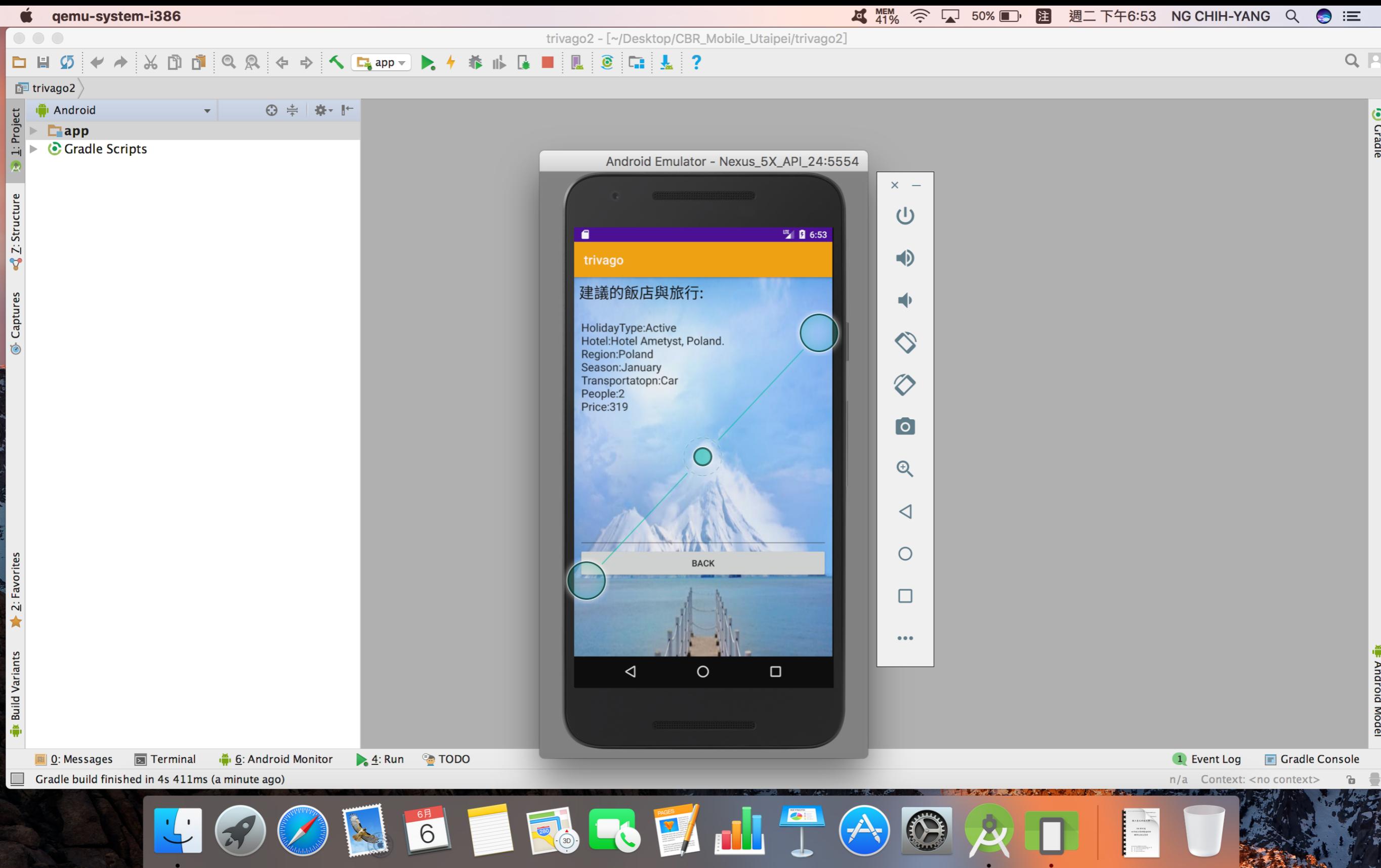
where $\delta(a, b) = \begin{cases} 1 & \text{if } (a = b) \\ 0 & \text{if } (a \neq b) \end{cases}$, (*argmax* means maximum of function).

My solution



The App





Thank you