





*public class* TaskScheduling {

 *public static int* getMinTime(*List*<Integer> task\_memory, *List*<Integer> task\_type, *int* max\_memory) {
 *int* minTime = 0;
 *Map*<Integer, Integer> typeToMemory = *new* HashMap<>();

 *for* (*int* i = 0; i < task\_memory.size(); i++) {
 *int* memory = task\_memory.get(i);
 *int* type = task\_type.get(i);

 *if* (typeToMemory.containsKey(type)) {
 *int* totalMemory = typeToMemory.get(type) + memory;
 *if* (totalMemory <= max\_memory) {
 typeToMemory.put(type, totalMemory);
 } *else* {
 minTime++; *// Process the task separately* typeToMemory.put(type, memory);
 }
 } *else* {
 typeToMemory.put(type, memory);
 minTime++; *// Process the first task separately* }
 }

 *return* minTime;
 }

 *public static void* main(String[] args) {
 *List*<Integer> task\_memory = *List*.*of*(1, 2, 3, 4, 2);
 *List*<Integer> task\_type = *List*.*of*(1, 2, 1, 2, 3);
 *int* max\_memory = 4;
 System.*out*.println(*getMinTime*(task\_memory, task\_type, max\_memory)); *// Output: 4* task\_memory = *List*.*of*(20, 17, 18, 13, 11, 13, 19, 15, 13, 10, 13, 12, 11, 15, 19, 16, 10, 11, 14, 18, 19);
 task\_type = *List*.*of*(20, 4, 3, 4, 1, 1, 3, 3, 4, 2, 2, 4, 3, 5, 1, 3, 4, 3, 2, 3, 1);
 max\_memory = 213;
 System.*out*.println(*getMinTime*(task\_memory, task\_type, max\_memory)); *// Output: 12* }
}