MTH 4300: Algorithms, Computers and Programming II

Fall 2025

Section: STRA

Quiz 2 (10 points)

Write a C++ program that reads a list of task priorities and outputs a summary of how many tasks exist for each priority level.

Requirements:

1. Define an enum `Priority` with values: `LOW`, `MEDIUM`, `HIGH`
2. Use a vector to store the task priorities
3. Count and display how many tasks exist for each priority level
4. Find and display the most common priority level

Input Format:

- First line: number of tasks `n`
- Second line: `n` space-separated integers representing priority (0=LOW, 1=MEDIUM, 2=HIGH)

Sample Input:

```
6
0 1 2 1 0 1
```

Expected Output:

```
LOW tasks: 2
MEDIUM tasks: 3
HIGH tasks: 1
Most common priority: MEDIUM
```

How do you read values into a vector?

```cpp
#include <vector>

int main() {
  int n;
  std::cin >> n;

  // allocate a vector with a predefined size of n
  std::vector<int> nums(n);

  for (int i = 0; i < n; i++) {
    std::cin >> nums[i];
  }
}
```

Solution

```cpp
#include <iostream>
#include <vector>

enum Priority { LOW = 0, MEDIUM = 1, HIGH = 2 };

int main() {
  int n;
  std::cin >> n;

  std::vector<int> priorities(n);
  for (int i = 0; i < n; i++) {
    std::cin >> priorities[i];
  }

  int low = 0, med = 0, high = 0;

  for (int priority : priorities) {
    switch (priority) {
    case LOW:
      low++;
      break;
    case MEDIUM:
      med++;
      break;
    case HIGH:
      high++;
      break;
    default:
      break;
    }
  }

  std::cout << "LOW tasks: " << low << std::endl;
  std::cout << "MEDIUM tasks: " << med << std::endl;
  std::cout << "HIGH tasks: " << high << std::endl;

  std::cout << "Most common priority: ";

  int max_value = low < med ? med : low;
  max_value = max_value < high ? high : max_value;

  if (max_value == low) {
    std::cout << "LOW ";
  }

  if (max_value == med) {
    std::cout << "MEDIUM ";
  }

  if (max_value == high) {
    std::cout << "HIGH ";
  }

  std::cout << std::endl;

  return 0;
}
```