**LAB terminal**

**Submitted By:**

Alveena Ayesha

FA21-BCS-014

**Course Instructor:**

Mr. Syed Bilal Bukhari

**Course:**

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**Q3**

**Examples of Mini Compiler Optimizations:**

1. **Constant Folding**
   * **Input**: int x = 3 \* 4;
   * **Optimized**: int x = 12;
2. **Dead Code Elimination**
   * **Input**: x = 10; x = 20;
   * **Optimized**: x = 20;
3. **Common Subexpression Elimination**
   * **Input**: int y = a + b; int z = a + b + c;
   * **Optimized**: int y = a + b; int z = y + c;
4. **Strength Reduction**

* **Input**: x = i \* 2;
* **Optimized**: x = i << 1; (bitwise shift).