**Python Programming Task 2**

**Report**

* **Introduction**
* Brief overview of the company and its role in the tech industry.
* Description of the internship program and assigned tasks.
* **Tasks Completed**
* **Basic Python Programs**
* Prime Number Checker: Determined if a number is prime.
* Sum of Digits: Calculated the sum of digits in an integer.
* LCM and GCD: Found the least common multiple and greatest common divisor of two numbers.
* List Operations: Reversed lists, sorted lists, and removed duplicates.
* String Operations: Calculated string length and counted vowels and consonants.
* **Advanced Algorithmic Task**
* Maze Generator and Solver:
  + Used Depth-First Search (DFS) and Breadth-First Search (BFS) for maze generation and solving.
  + Represented mazes as grids using nested lists.
  + Ensured solvable mazes with clear paths and walls.
  + Focused on text-based visualization without external libraries.
* **Learning Outcomes**
* Gained hands-on experience in Python programming and algorithm implementation.
* Improved problem-solving and logical thinking skills.
* Learned core concepts of graph theory and traversal algorithms (DFS, BFS).
* Understood the importance of optimizing solutions for real-world scenarios.
* **Conclusion**
* Successfully completed all tasks assigned during the internship.
* Enhanced technical and analytical skills relevant to the software industry.
* Grateful for the opportunity to work with Main Flow Services and Technologies Pvt. Ltd.