PREFACE

All praise and gratitude to Allah for all His grace and guidance. This thesis, titled "Optimized Recommendation of N-days Tourist Route using the Improved Artificial Bee Colony Algorithm based on reverse learning Harris Hawks Optimization (HABC) in Solving Vehicle Routing Problem: A Case Study of Yogyakarta, Indonesia" can be completed properly.

This thesis was prepared as a prerequisite for earning a Master's degree in the Informatics program at Telkom University. Additionally, it contributes to the field of Computer Science, specifically in the topic of Recommender Systems with a particular focus on tourism.

However, writing this thesis was not something that was easy. The author encountered many challenges and obstacles, such as spending time looking for relevant journals that were sometimes difficult to find, preprocessing data which was time-consuming, conducting many trials and errors to achieve the best results, and occasional loss of motivation and enthusiasm.

The author also realizes that this thesis is far from perfect due to its shortcomings. Furthermore, its successful completion is intricately linked to the guidance, direction, and support provided by many individuals. Therefore, the author wants to express sincere gratitude to all those involved, whether their contributions were direct or indirect.

Bandung,

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