# 7. REQUIREMENTS MATRIX

This section provides a traceability matrix linking the functional requirements defined in the Software Requirements Specification (SRS) document to the software components designed in this Software Design Document (SDD). It ensures that each requirement is addressed by at least one software module.

|  |  |  |
| --- | --- | --- |
| Requirement ID | Requirement Description | Component Responsible |
| F1–F2 | Allow visitors to browse and search for products | ProductCatalogModule |
| F3–F4 | User registration and authentication | UserAuthenticationModule |
| F5–F7 | Product browsing and shopping cart operations | ShoppingCartModule |
| F8–F10, F13 | Checkout process, payment, and order cancellation | OrderProcessingModule |
| F9 | Apply promotional codes during checkout | PromotionEngine |
| F11–F12 | User feedback and support interactions | CustomerSupportModule |
| F14, F17 | Automated email notifications and reorder alerts | NotificationService |
| F15–F16, F22–F24 | Vendor and product offering management | VendorManagementModule |
| F18–F21 | Administrative functions (database, categories, responses) | AdminControlPanel |
| NFRs (all) | Non-functional concerns: security, performance, scalability | CrossCuttingConcerns (Security, Logging, Optimization) |

# 8. APPENDICES

This section provides supplementary materials that support the understanding and development of the Online Blueberry Order System, including terminology, tools used, APIs, and suggestions for future development.

## Appendix A – Glossary of Terms and Acronyms

|  |  |
| --- | --- |
| Term / Acronym | Definition |
| API | Application Programming Interface – Enables communication between different software systems. |
| MVC | Model-View-Controller – A software architectural pattern that separates data (Model), UI (View), and control logic (Controller). |
| ORM | Object-Relational Mapping – A technique for converting data between incompatible systems. |
| CDN | Content Delivery Network – A system of distributed servers that deliver content based on geographic location. |
| IIS | Internet Information Services – A flexible, secure, and manageable Web server for hosting content. |
| SSL | Secure Sockets Layer – A standard technology for keeping internet connections secure. |
| HTTPS | Hypertext Transfer Protocol Secure – An extension of HTTP using SSL/TLS. |
| SaaS / PaaS | Software/Platform as a Service – Cloud models for delivering software/platforms online. |

## Appendix B – Development Environment and Tools

• Integrated Development Environment (IDE): Microsoft Visual Studio 2022  
• Web Server: IIS (Internet Information Services)  
• Back-End Framework: ASP.NET MVC 5  
• Database Management System: Microsoft SQL Server  
• ORM: Entity Framework  
• Front-End Technologies: HTML5, CSS3, JavaScript, jQuery, Bootstrap  
• Communication API: WhatsApp Business API  
• Security & Deployment: SSL Certificates, HTTPS protocol, CDN integration  
• Browser Compatibility: Chrome, Firefox, Safari, Microsoft Edge  
• Device Compatibility: Responsive design for desktop, tablet, and mobile browsers

## Appendix C – External APIs and Services

• WhatsApp Business API: Used to send order confirmation or updates to customers.  
• Email Notification Service (e.g., SMTP): For sending transactional emails like registration confirmation or invoice.  
• CDN Service (e.g., Cloudflare, AWS CloudFront): Used to accelerate load times of static assets.  
• Payment Gateway (planned): To be integrated for credit card transactions in future development.

## Appendix D – Future Enhancements

• Mobile App Integration: Native or hybrid application (Android/iOS) for better accessibility.  
• AI-Powered Recommendation Engine: Product suggestions based on user behavior and preferences.  
• Live Chat / Chatbot Integration: To improve customer support and reduce manual workload.  
• Order Tracking System: A system for users to check the status of their orders with real-time updates.  
• Analytics Dashboard for Admin: To monitor KPIs such as sales, user activity, and product performance.