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BSIT 3-1N
COMP 016 : WEB DEVELOPMENT

ASSIGNMENT #1 - WEB DEVELOPMENT

1. IDENTIFY AND DISCUSS ESSENTIAL BEST PRACTICES IN WEB DEVELOPMENT, SUCH AS CODE OPTIMIZATION, SECURITY MEASURES, AND ACCESSIBILITY STANDARDS.

WEB DEVELOPMENT BEST PRACTICES, INCLUDING CODE OPTIMIZATION, SECURITY MEASURES, AND ACCESSIBILITY STANDARDS, ARE ESSENTIAL FOR BUILDING PERFORMANT, SECURE, AND INCLUSIVE WEBSITES.

CODE OPTIMIZATION ENSURES FASTER LOAD TIMES AND BETTER USER EXPERIENCES. IT MINIMIZES RESOURCES CONSUMED BY THE APPLICATION, IMPROVING THE PERFORMANCE.

SECURITY MEASURES LIKE HTTPS, ENCRYPTION, AND PROPER INPUT VALIDATION PROTECT AGAINST VULNERABILITIES. IT SAFEGUARDS DATA AND PREVENTS ATTACKS LIKE SQL INJECTIONS OR CROSS-SITE SCRIPTING.

ACCESSIBILITY STANDARDS, SUCH AS W3C GUIDELINES, MAKE WEBSITES USABLE FOR INDIVIDUALS WITH DISABILITIES. IT ENSURES THE SITE IS INCLUSIVE AND LEGALLY COMPLIANT, BROADENING ITS REACH.

BY ADHERING TO THESE PRACTICES, DEVELOPERS CREATE HIGH-QUALITY WEB APPLICATIONS THAT ARE EFFICIENT, SECURE, AND ACCESSIBLE TO ALL USERS.

2. EXPLORE EMERGING TRENDS AND TECHNOLOGIES IN WEB DEVELOPMENT (e.g. PROGRESSIVE WEB APPS, WEB ASSEMBLY). HOW ARE THESE TRENDS RESHAPING THE LANDSCAPE OF WEB DEVELOPMENT, AND WHAT OPPORTUNITIES DO THEY PRESENT FOR DEVELOPERS?

NEW TRENDS AND TECHNOLOGIES ARE RESHAPING WEB DEVELOP-

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MENT, OFFERING NEW WAYS TO IMPROVE PERFORMANCE AND USER EXPERIENCE. FOR EXAMPLE, TECHNOLOGIES THAT ENABLE FASTER AND MORE DYNAMIC WEB APPLICATIONS OR MAKE IT EASIER TO CREATE MOBILE-FRIENDLY SITES ARE BECOMING POPULAR. THESE TRENDS PROVIDE DEVELOPERS WITH NEW TOOLS TO BUILD MORE POWERFUL, FLEXIBLE, AND ENGAGING WEB APPLICATIONS, OPENING UP OPPORTUNITIES FOR INNOVATION ACROSS PLATFORMS.

3. EXPLAIN THE CONCEPT OF BACKEND DEVELOPMENT AND ITS ROLE IN HANDLING SERVER-SIDE LOGIC AND DATA STORAGE.

BACKEND DEVELOPMENT IS THE PROCESS OF MANAGING SERVER-SIDE LOGIC, DATABASES, AND SERVER CONFIGURATIONS THAT HANDLE DATA PROCESSING AND APPLICATION FUNCTIONALITY. IT MANAGES, PROCESSES, AND STORES INFORMATION, SUCH AS VERIFYING LOGIN CREDENTIALS AND MANAGING USER DATA. IT IS ESSENTIAL FOR BUILDING SCALABLE, RELIABLE WEB APPLICATIONS CAPABLE OF MANAGING COMPLEX DATA AND TRANSACTIONS.

4. COMPARE AND CONTRAST DIFFERENT SERVER-SIDE TECHNOLOGIES (e.g., NODE.JS, PHP, PYTHON DJANGO) IN TERMS OF PERFORMANCE, SCALABILITY, AND EASE OF USE. HOW DO THESE TECHNOLOGIES INTERACT WITH FRONTEND FRAMEWORKS?

DIFFERENT SERVER-SIDE TECHNOLOGIES OFFER VARIOUS BENEFITS. Node.js IS FAST AND SCALABLE, MAKING IT GREAT FOR REAL-TIME APPLICATIONS. PHP IS SIMPLE AND WIDELY USED, BUT LESS EFFICIENT THAN NEWER TECHNOLOGIES. Django IS SECURE AND IDEAL FOR RAPID DEVELOPMENT. THESE TECHNOLOGIES WORK WITH FRONTEND FRAMEWORKS BY PROCESSING DATA ON THE SERVER AND DISPLAYING IT TO USERS.

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5. DEFINE HTML (HYPERTEXT MARKUP LANGUAGE) AND EXPLAIN ITS ROLE IN WEB DEVELOPMENT.

HTML OR HYPERTEXT MARKUP LANGUAGE IS THE BACKBONE OF WEBPAGES. IT PROVIDES THE STRUCTURE FOR CONTENT LIKE TEXT, IMAGES, AND LINKS, WHICH BROWSERS INTERPRET AND DISPLAY. EVERY WEB PAGE RELIES ON HTML TO ORGANIZE AND PRESENT INFORMATION CLEARLY.

6. DISCUSS THE IMPORTANCE OF SEMANTIC MARKUP IN HTML AND PROVIDE EXAMPLES OF SEMANTIC ELEMENTS. HOW DOES SEMANTIC MARKUP CONTRIBUTE TO ACCESSIBILITY AND SEARCH ENGINE OPTIMIZATION (SEO)?

SEMANTIC MARKUP IS IMPORTANT BECAUSE IT GIVES MEANING TO WEB CONTENT. TAGS LIKE <article> AND <nav> HELP SEARCH ENGINES UNDERSTAND THE STRUCTURE OF A PAGE, IMPROVING SEO. IT ALSO ENHANCES ACCESSIBILITY BY ALLOWING SCREEN READERS TO NAVIGATE THE CONTENT EASILY, PROVIDING A BETTER EXPERIENCE FOR USERS WITH DISABILITIES. IN SHORT, SEMANTIC HTML IMPROVES BOTH SEARCH ENGINE VISIBILITY AND USABILITY, MAKING WEBSITES MORE EFFECTIVE AND ACCESSIBLE.