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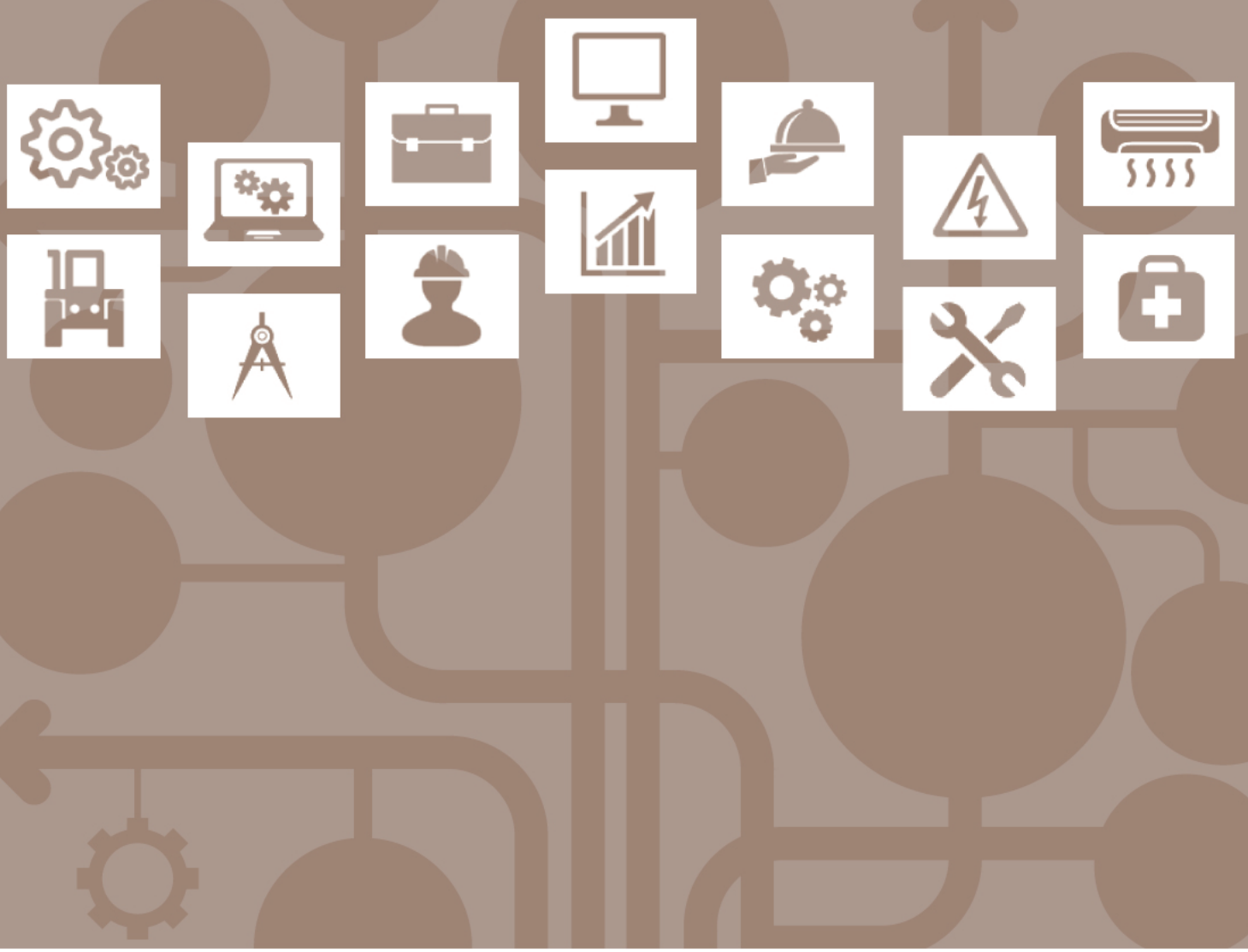
Entry Level Assessment Blueprint

Computer Programming



Test Code: 4123 / Version: 01

Specific Competencies and Skills Tested in this Assessment:

General Information and Concepts

- Apply general design and programming concepts
- Identify various hardware platforms and runtime environments
- Identify human aspects in information systems
- Identify general information technology (IT) definitions and terms
- Adhere to best programming practices and methodologies
- Exhibit understanding of data hierarchy, access methods, and manipulation

Ethics, Legal Compliance, and Security

- Identify concepts of ethics and legal compliance
- Identify security concepts
- Identify appropriate safety procedures

Analyze Programming Problems, Manage Projects, and Create Flowchart Solutions

- Analyze user requirements for a given outcome
- Determine input and output formats for a given code segment
- Identify and describe a data flow diagram
- Identify and describe a process logic diagram
- Describe steps in the system development cycle
- Describe steps and roles in the project management life cycle
- Define key terminology related to computer programming

Design Program Solutions

- Determine appropriate data types and requirements
- Determine where data is to be accessed or stored
- Design data storage and layout
- Apply principles of quality, efficient programming
- Explain the importance of a design review
- Assess impact of changes on existing systems

Code Programs

- Distinguish and identify different types of programming languages
- Determine the variables and data types for a program
- Prepare and code routines using structured logic
- Apply appropriate computer language syntax
- Create and identify unit testing requirements
- Document appropriate comments and programmer notes

Specific Competencies and Skills continued:

Test Programs

- Explain system testing requirements
- Design and analyze test plan for use in program testing
- Test programs and evaluate results for accuracy
- Correct programming errors discovered during testing
- Apply implementation plans for a new system

Maintain Programs and Implement Change Management Procedures

- Change existing programs as requirements change
- Update documentation for changes made to existing programs
- Provide user instructions on changes made to existing programs

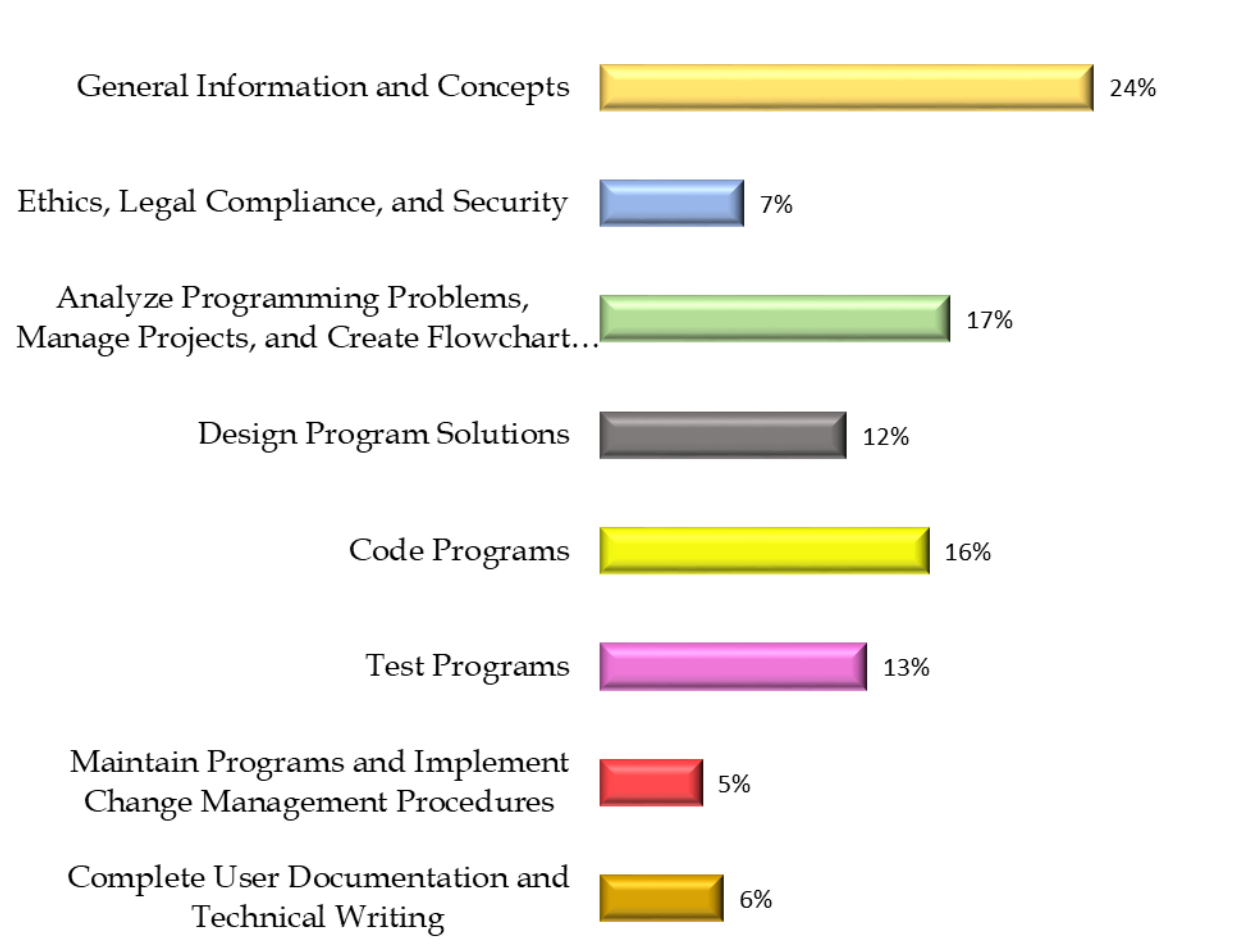
Complete User Documentation and Technical Writing

- Develop documentation narrative
- Document data use and storage
- Develop help resources for users

Written Assessment:

Administration Time: 3 hours
Number of Questions: 173

Areas Covered:



Sample Questions:

Arranging data elements into a sequence to facilitate processing is called

A. merging
B. sorting
C. classifying
D. summarizing

When quering fields in a database, one or more records will be

A. inserted
B. selected
C. updated
D. deleted

What federal law protects developers of software programs?

A. Copyright Act of 1976
B. The Intellectual Act of 2001
C. The Software Act of 1976
D. The Federal Law of Software

The purpose of a substring function is to

A. separate an alpha field into smaller parts
B. have one part of a header appear under a main heading
C. be able to print a formula such as H2O
D. have a string of data underneath another string of data in a report

A "divide-by-zero" error is a _____ error.

A. runtime
B. compiling
C. system
D. user

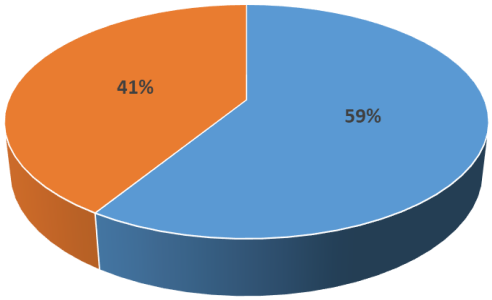
Performance Assessment:

Administration Time: 2 hours
Number of Jobs: 2

Areas Covered:

41% **Design Solution Logic**
Participant will read input file until end of File (EOF), list name and date of birth in each record, count number of people in the file, calculate age of each person in the file, calculate average age group, produce a Summary Line, and produce a hard copy of the logic flow diagram to present to the evaluator.

59% **Write a Program**
Participant will create a program to track customer purchases, create a data file, perform calculations, print to the command line, print the source code, data file, and print screen of the output, and submit to the evaluator.



Sample Job: Design Solution Logic

Maximum Time: 1 hour

Participant Activity: Participant will read input file until end of File (EOF), list name and date of birth in each record, count number of people in the file, calculate age of each person in the file, calculate average age of group, produce a Summary Line (indicating total number of people and average age for the group), and produce a hard copy of the logic flow diagram to present to the evaluator.