nelsonnet

Student book answers

Chapter 5 Approaches to problem solving

Test your knowledge

APPROACHES TO PROBLEM-SOLVING METHODOLOGY

1 A project has the following characteristics:

- a clearly defined purpose
- a starting time
- a finite lifetime
- a number of interdependent tasks.

2 Human resource management, communication, quality control, time management, costing, accounting and contract management.

All projects involve a degree of financial risk. The project manager must not only try to organise a low cost solution but also a solution that has a low risk of running over budget.

3 Tasks that are on the critical path might cause the whole project to be delayed even if they are a short time overdue. Extra resources may need to be provided to ensure that they do not run over the time allocated.

4 A project table allows the project manager to break down the project into smaller tasks and determine task durations and predecessors. The project table is the foundation for constructing a Gantt chart. A Gantt chart is one common way of displaying a schedule. It provides a timeline of how the project will be implemented. The Gantt chart visually represents the tasks that have to be completed, when they are to be completed and the time that each task should take.

5 Keeping track of file versions is very important because it helps to prevent people overwriting newer versions of files with their own, older copy. In addition, file versions allow members of a team to have access to the most recent version of documents.

6 Groupware manages multiple users working on the same set of documents. Groupware features include being able to send a document to several people in order, for review, and permitting team members to lock certain files during editing. Most groupware also provides real-time messaging and conferencing functions.

7 Design stage:

In the design stage, you focus on creating a plan of the solution. Designing a solution often occurs without using a computer at all. Much time can be wasted if a design has not been properly planned before work starts on developing the solution. As stated above, the two activities associated with this stage are first designing the solution and then designing the evaluation criteria.

In Unit 1, Outcome 3, you are creating a website. Generally, you would follow the steps below.
1 Identify the data you require.
2 Choose an appropriate web-authoring software.
3 Decide how to manipulate the data.
4 Determine the appropriate UIs and apply appropriate information architecture.
5 Develop the site map.

6 Construct storyboards.
7 Choose layout designs.
8 Choose test data.
9 Choose conventions and apply formats.
10 Consider the design principles that influence the appearance of onscreen solutions.

Development stage:

- Manipulation: buttons, hyperlinks, tagging, sound editing, text editing, image editing, storage and retrieval

- Validation: manual and electronic

- Testing: functionality, presentation, useability, accessibility, communication of message

- Documentation

8 Responses will vary.

9 Responses will vary.

10 A storyboard shows general screen designs, the placement of graphics and describes actions and links to other pages. It contains general information about the layout of scenes and pages. It also contains details about file names and locations.

A layout diagram provides a visual representation of how the final designed product should look. It contains only the design of the page, spreadsheet or brochure. It contains greater detail about the page and all the elements it contains. The spreadsheet also contains all of the formulas used and comments and validation techniques.

11 A site map makes it easier to see where links lead and helps to maintain control over which pages are finished and ensures that links are correctly set.

12 Testing is a necessary activity in problem solving. Testing ensures that the product is error-free. It is not conducted in an ad-hoc fashion; rather, it involves the development and use of test or dummy data.

13 Onscreen output must be carefully designed, taking into account an important set of design principles. For effective communication of the message, the output should be easy to access and navigate, as well as be visually clear and functional. Onscreen output that does not meet these criteria will frustrate users and may mean that they are not able to access the information required in a timely manner. Users or visitors to a website want a well-constructed website that provides the necessary information without having to waste much of their time sifting through pointless information. They also want a website that does not take a long time to load. Websites with many large images or movies can take a considerable time to load. This can be off-putting and frustrating to users, especially to those people who have slow connections.

14 One purpose of manual validation for a website solution is that it is much more accurate to have a person check for grammar, spelling, punctuation and sense in text than it is to use electronic validation. A person can understand the nuances of sentences; a computer cannot. Electronic validation is conversely much more purposeful at checking numeracy and reasonableness. Electronic validation would use software features such as spell-checkers or grammar checkers to verify accuracy.

15 To format means to change the appearance of a document by changing features such as fonts, margins, spacing, columns, tables, graphics, borders, page numbers, headers and footers. Conventions are simply formal ways of displaying information. They are well-known rules that people follow when using software.

16 File names should be kept short and meaningful. They are easier to read in lower case than in upper case. Every webpage must be saved with a unique file name. File names usually contain letters, numbers or the underscore symbol. Giving them a unique and meaningful name will assist with the identification and linking of files.

17 Serif fonts are usually easier to read in printed works than sans-serif fonts. Serif fonts, which have small tails at the end of some letters, are used to make it easier for the viewer to read, as they can guide the eye and reduce eyestrain when reading large blocks of text. Sans-serif fonts, have no tails (and without serifs) and are better suited to the web.

18 For websites, what is of concern are the colours and how they contrast with one another. In terms of contrast, it is generally best to use a lighter, paler colour as a page background, with a darker colour for the text. This makes it easier to read the onscreen text, therefore encouraging users to continue to browse the site.

19 When designing a website, it is important to consider the site's information architecture. Information architecture refers to the structure of the website and its navigation pathways. If people cannot navigate through a website, they will leave quickly.

Apply your knowledge

1
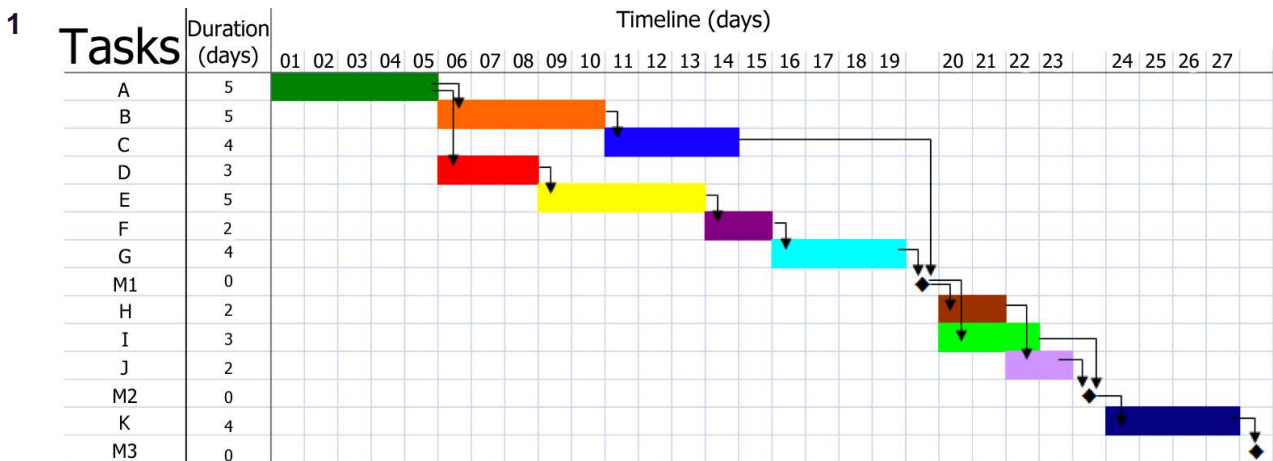
2 a Tasks A, D, E, F, G, H, J and K

   b 27 days

   c There will be no impact on the critical path if Task C takes an extra three days because there are five days of slack time available. After the extra three days, there will still be two remaining days of slack time before milestone M1.

   d In this case the tasks on the critical path remain the same, but the entire project is delayed by the extra four days. This means that it will now take at least 31 days to complete instead of 27.

CHARLOTTE – ONLINE SAFETY PREFECT

Responses will vary.