



Case

Nightingale Project—A

You are the assistant project manager to Rassy Brown, who is in charge of the Nightingale project. Nightingale was the code name given to the development of a handheld electronic medical reference guide. Nightingale would be designed for emergency medical technicians and paramedics who need a quick reference guide to use in emergency situations.

Rassy and her project team were developing a project plan aimed at producing 30 working models in time for MedCON, the biggest medical equipment trade show each year. Meeting the MedCON October 25 deadline was critical to success. All the major medical equipment manufacturers demonstrated and took orders for new products at MedCON. Rassy had also heard rumors that competitors were considering developing a similar product, and she knew that being first to market would have a significant sales advantage. Besides, top management made funding contingent upon developing a workable plan for meeting the MedCON deadline.

The project team spent the morning working on the schedule for Nightingale. They started with the WBS and developed the information for a network, adding activities when needed. Then the team added the time estimates they had collected for each activity. Following is the preliminary information for activities with duration time and predecessors:

Activity	Description	Duration	Predecessor
1	Architectural decisions	10	None
2	Internal specifications	20	1
3	External specifications	18	1
4	Feature specifications	15	1
5	Voice recognition	15	2,3
6	Case	4	2,3
7	Screen	2	2,3
8	Speaker output jacks	2	2,3
9	Tape mechanism	2	2,3
10	Database	40	4
11	Microphone/soundcard	5	4
12	Pager	4	4
13	Barcode reader	3	4
14	Alarm clock	4	4
15	Computer I/O	5	4
16	Review design	10	5,6,7,8,9,10,11,12,13,14,15
17	Price components	5	5,6,7,8,9,10,11,12,13,14,15
18	Integration	15	16,17
19	Document design	35	16
20	Procure prototype components	20	18
21	Assemble prototypes	10	20
22	Lab test prototypes	20	21
23	Field test prototypes	20	19,22
24	Adjust design	20	23
25	Order stock parts	15	24
26	Order custom parts	2	24
27	Assemble first production unit	10	25, FS—8 time units 26, FS—13 time units
28	Test unit	10	27
29	Produce 30 units	15	28
30	Train sales representatives	10	29

Use any project network computer program available to you to develop the schedule for activities (see Case Appendix for further instructions)—noting late and early times, the critical path, and estimated completion for the project.

Prepare a short memo that addresses the following questions:

1. Will the project as planned meet the October 25th deadline?
2. What activities lie on the critical path?
3. How sensitive is this network?



Case

Nightingale Project—B

Rassy and the team were concerned with the results of your analysis. They spent the afternoon brainstorming alternative ways for shortening the project duration. They rejected outsourcing activities because most of the work was developmental in nature and could only be done in-house. They considered altering the scope of the project by eliminating some of the proposed product features. After much debate, they felt they could not compromise any of the core features and be successful in the marketplace. They then turned their attention to accelerating the completion of activities through overtime and adding additional technical manpower. Rassy had built into her proposal a discretionary fund of \$200,000. She was willing to invest up to half of this fund to accelerate the project, but wanted to hold onto at least \$100,000 to deal with unexpected problems. After a lengthy discussion, her team concluded that the following activities could be reduced at the specified cost:

- Development of voice recognition system could be reduced from 15 days to 10 days at a cost of \$15,000.
- Creation of database could be reduced from 40 days to 35 days at a cost of \$35,000.
- Document design could be reduced from 35 days to 30 days at a cost of \$25,000.
- External specifications could be reduced from 18 days to 12 days at a cost of \$20,000.
- Procure prototype components could be reduced from 20 days to 15 days at a cost of \$30,000.
- Order stock parts could be reduced from 15 days to 10 days at a cost of \$20,000.

Ken Clark, a development engineer, pointed out that the network contained only finish-to-start relationships and that it might be possible to reduce project duration by creating start-to-start lags. For example, he said that his people would not have to wait for all of the field tests to be completed to begin making final adjustments in the design. They could start making adjustments after the first 15 days of testing. The project team spent the remainder of the day analyzing how they could introduce lags into the network to hopefully shorten the project. They concluded that the following finish-to-start relationships could be converted into lags:

- Document design could begin 5 days after the start of the review design.
- Adjust design could begin 15 days after the start of field test prototypes.