For Teachers

Introduction

This program introduces all stages of the systems development cycle with emphasis on how they are managed. From the initial conception of the idea, through planning, building, testing, implementation and evaluation, the importance of good management is demonstrated using experts in their field. Students will find the examples used, such as iPad and iPhone application development, both relevant and interesting.

The importance of teamwork and communication skills is emphasised along with the need for a shared vision and motivation that gives the development team cohesion. Carefully examining formal proposals and feasibility studies helps to manage costs and the importance of formal documentation is shown. Good market research, quality control, thorough testing and user support, are shown as key management strategies ensuring the profitability of a software product.

Timeline

00:00:00 The project
00:04:41 The team
00:08:02 Planning for success
00:11:58 The proposal
00:14:02 Design and development
00:16:08 Construction and implementation
00:19:47 Credits
00:20:35 End program

Related Titles

Multimedia Systems
Data: Ethical Use and Storage
Designing on Screen
Learning with Wikis and Blogs

Recommended Resources

http://en.wikipedia.org/wiki/Flowchart
**Student Worksheet**

**Initiate Prior Learning**

1. Why do you think some software systems take years to develop and cost millions of dollars?

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2. Make a list of your class’s favourite computer games. How much do they cost to purchase? Try to find out how much they cost to develop.

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3. Make a list of the most common web sites the members of your class use to find answers to their assignments. Discuss in your class how you know if the information there is correct?

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4. When you have to work on a team project what makes the team function best?

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Active Viewing Guide

1. What was the original idea behind Wikipedia?

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2. What are the consequences of bad project management?

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3. How could Bjango Software Company be considered to use the KISS (Keep it simple stupid) principle in their approach to software development?

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4. What are the main stages in the life cycle of a software project?

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5. How does Bjango use a virtual office to communicate and collaborate?

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6. How are Gantt charts used to manage projects?

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7. What is systems analysis?

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8. What are the two most important social implications to be considered when developing a new software product?

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9. What is considered in a good feasibility study?

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10. What is the purpose of a project proposal?

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11. What are the benefits of developing a prototype or mock-up of a new system?

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12. Pre packaged (also called off the shelf) software is useful for software development. What is Microsoft Access used for?

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13. It is very difficult to find every possible error in complex software systems. How does Bjango overcome this problem?

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14. How does a software provider ensure that users understand how to use their systems?

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15. How is the success of an application measured?

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Extension Activities

1. What political implications have arisen from the development of the Wikileaks web site?

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3. Research "Agile" development. How is this different to traditional methods of software development?

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4. Watch the online Gantt chart video at this location.  http://www.teamgantt.com/tour/

   a) How could this be useful for managers of a project with team members scattered around the world?
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5. View the video at this site http://www.protoshare.com/tour/index.html. Describe the advantages of prototyping when developing a new website.
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Suggested Student Responses

Initiate Prior Learning

1. Why do you think some software systems take years to develop and cost millions of dollars?
   Many commonly used computer based systems such as the RTA’s registration and licensing systems or the government schools email system are very complex projects that take many people and many years to produce and require constant improvement and maintenance.

2. Make a list of your class’s favourite computer games. How much do they cost to purchase? Try to find out how much they cost to develop.
   Answers will vary. This site shows that it cost on average around 18-28 million to create a next gen game http://www.develop-online.net/news/33625/Study-Average-dev-cost-as-high-as-28m

3. Make a list of the most common web sites the members of your class use to find answers to their assignments. Discuss in your class how you know if the information there is correct?
   Answers will include search engines such as Google or Bing and encyclopaedia sites like Wikipedia. Verification methods such as authorship and cross-referencing methods should be considered when using “facts” from any website.

4. When you have to work on a team project what makes the team function best?
   Answers should include:
   Communication skills, such as being able to clearly express ideas and to listen to each other
   Keeping accurate records of the work done, making lists of jobs to be done and who has to do them
   Keeping a diary
   Being motivated and willing to work and cooperate with each other
   Resolving conflicts
Active Viewing Guide

1. What was the original idea behind Wikipedia? 
   To create an online encyclopedia using voluntary contributors.

2. What are the consequences of bad project management? 
   Projects will: 
   - run over time 
   - cost too much 
   - won’t work properly 
   - won’t be used

3. How could Bjango Software Company be considered to use the KISS (Keep it simple stupid) principle in their approach to software development? 
   Bjango has a small team who only take on simple projects that they can focus on and reduce the complexity of their projects in order to reduce errors.

4. What are the main stages in the life cycle of a software project? 
   The main stages are: 
   - clarifying the main idea, 
   - planning 
   - building 
   - testing 
   - implementation 
   - evaluation

5. How does Bjango use a virtual office to communicate and collaborate? 
   There are many software tools such as Jabber, Chat, Skype, Googledocs, Google wave, "go to my pc" and others which allow workers to communicate, to see each other’s screens, discuss work and share files.

6. How are Gantt charts used to manage projects? 
   Gantt charts show the duration of each component of a complex project as horizontal timelines in a table. The project manager can visualise the parts of a project more easily and make changes when activities run over time.

7. What is systems analysis? 
   Breaking a complex process down into documented simpler steps in order to get a better understanding of the process.

8. What are the two most important social implications to be considered when developing a new software product? 
   Privacy and security of data 
   The political implications

9. What is considered in a good feasibility study? 
   What the program will do, why it is not already available, why the program will succeed, how successful will it be, will there be competition, will it be different enough from other products to succeed.

10. What is the purpose of a project proposal? 
    To present, or "sell" the project to management. It should contain all the information that management needs to decide if the project should go ahead or not.
11. What are the benefits of developing a prototype or mock-up of a new system?  
A prototype helps develop a clearer understanding and solves the problems of the technical aspects of the system early in development.

12. Pre packaged (also called off the shelf) software is useful for software development. What is Microsoft Access used for?  
Microsoft Access is an “off the shelf” database tool which can be easily modified to create new customised databases.

13. It is very difficult to find every possible error in complex software systems. How does Bjango overcome this problem?  
Bjango provides quick updates or error patches when users find errors.

14. How does a software provider ensure that users understand how to use their systems?  
By providing training, online help files, user blogs and other support methods.

15. How is the success of an application measured?  
An application is successful if it delivers all the benefits expected from it by the user.
Extension Activities

1. What political implications have arisen from the development of the Wikileaks web site?
   Wikileaks has exposed many controversial political issues by making the decision making process of many government bodies public. Students can find lots of information about the current wikileaks issue online.

2. Visit Wikipedia http://en.wikipedia.org/wiki/Wikipedia:About and find out who can make changes to content and how the content is edited. Anyone can make edits but they are vetted (approved) by editors who are voluntary experts. Quote from Wikipedia "Contributions cannot damage Wikipedia because the software allows easy reversal of mistakes and many experienced editors are watching to help and ensure that edits are cumulative improvements."

3. Research "Agile" development. How is this different to traditional methods of software development?
   Adapted from Wikipedia http://en.wikipedia.org/wiki/Agile_development
   Twelve principles underlie the Agile development method, including:
   - Customer satisfaction by rapid delivery of useful software
   - Welcome changing requirements, even late in development
   - Working software is delivered frequently (weeks rather than months)
   - Working software is the principal measure of progress
   - Sustainable development, able to maintain a constant pace
   - Close, daily co-operation between business people and developers
   - Face-to-face conversation is the best form of communication (co-location)
   - Projects are built around motivated individuals, who should be trusted
   - Continuous attention to technical excellence and good design
   - Simplicity
   - Self-organising teams
   - Regular adaptation to changing circumstances

4. Watch the online Gantt chart video at this location. http://www.teamgantt.com/tour/
   a) How could this be useful for managers of a project with team members scattered around the world?
      Online Gantt charts allow teams to collaborate with each other in the management of a project, reducing the amount of email or chat needed to communicate or share files.

5. View the video at this site http://www.protoshare.com/tour/index.html. Describe the advantages of prototyping when developing a new website. Prototyping allows a customer wanting a new website to see what they will get before it is fully developed. This ensures their satisfaction.