



Computer Operations/Writing-Publishing Applications

Computer Security Consultant

You are a computer security consultant who has just been retained as a computer crime forensics expert for a small town police department. You will be working with two undercover detectives who want to acquire a more in-depth understanding of Windows XP and Linux operating systems—the two systems that they primarily encounter in most of their criminal investigations.

The department has provided funding for two computer forensics stations (one for each operating system) that you will build for the detectives. The detectives will use the stations for training and practice. The department also asked if you could create a step-by-step basic installation user manual for each operating system which the detectives and other officers can use as a guide for self-paced training on these operating systems.

While you are setting up the two stations, write down each step of the installation process. Be accurate and concise in describing each step and include a brief technical description about what each step is accomplishing. For example:

Step X: *Partition the hard drive*

Description: *Partitioning the hard drive creates the master boot record.*

Database Applications

Meteorologist

As the meteorologist for the local TV station, you need to provide at least four weather forecasts every day for your listeners. You would also like to start including some historical weather information from previous years or some record breaking event on a particular date in history in your reports. Creating a database seems to be the logical way to organize this information. There are 13 factors you want to track for your initial tracking. A tracking system will be generated for your forecasting purposes. Each day you will need to enter the daily research results into the forms that you create, and at the end of the day, you will calculate the averages for some of the factors as part of your historical data records. Reports will be generated from this tracking system can be included in your daily forecasts.

Law Enforcement Officer

You are a senior law enforcement officer in a small town jurisdiction. The budget that you have requested for two Computer Forensics stations has finally been approved by your department. To get the most out of your funding, you need detailed lists of the various components to be purchased for the computer forensics stations. One of the stations will be running on a Windows Operating System and the other will be on Linux. You need to determine what items will best fit your budget but not compromise the required functionalities needed for each operating system. You have decided to create a database of information about the various products being offered for computer technology and computer forensics for both operation systems.

Your database should include information on all necessary equipment and their functions, projected costs associated with purchasing and maintaining the equipment and/or components, manufacturer name and contact information, and what other Law Enforcement Agencies are using the same product. The technology should also be categorized as follows: hardware, software, or peripherals. Each item should also include your recommendation as to whether you recommend purchasing the item or following up with additional research.

When your database is completed, email a copy of your database to your purchasing department.

IT Across Careers Sample Scenarios

Geographic Positioning/Global Information Systems (GPS/GIS)

Environmental Compliance Coordinator

You are an environmental compliance coordinator for a large scale livestock operation and are responsible for documenting and recording all waste material handling and distribution. You maintain a GIS database of the area's geographic features which includes data from weekly water samples of the nearby stream and waste handling point levels. You also maintain records of environmental impact data from various events affecting the local area's resources.

Two days ago, a fish kill was reported downstream from one of your manure handling facilities. This morning, the local Department of Natural Resources officer contacted you requesting information concerning recent spills downstream. Although you have last week's records of water samples from some downstream locations, you do not have samples from the area of the fish kill. In order to provide the most current information to the DNR officer, you will need to perform the following: locate and record the coordinates of the fish kill; take a water sample from each position; record the sampling positions and water sample results into the GIS; compare the results with previous water test results of that area.

After you complete the installation of both operating systems, compare the two OS by listing the similarities and differences of each system's functionality. This can be done in table format and included as a summary in the system's user manual.

Submit copy of the training manuals to the detectives for review.

Internet Browser Applications

Elementary School Principal

You are a principal of a suburban elementary school whose school district has had to make severe budget cuts because the new school bond issue was not approved by the voters in the recent elections. One of the causalities of the budget cuts is the after school tutoring program. Dozens of parents have been calling to express their disappointment over the loss of this program and asking if the school could secure alternative funding to maintain the program.

With support and approval from your district manager, you decide to conduct some preliminary research and compile a list of governmental agencies, private organizations, and businesses that might support your school's tutoring program.

Organize your findings in table format and include the name of the organization, business, or government agency/program, type of OST programs they support, contact information, deadline or funding cycle, level of funding or in-kind support that is available, a summary of the funder's guidelines, and the pros and cons of each program or funder. Your report should contain a minimum of 5 government agencies or programs, 3 private organizations, and 2 business or corporate sponsors.

Submit a copy of your report to your district manager for review.

Safety Training Officer/Gas Gathering Company

You are a Safety Training Officer for a small American gas gathering company of 30 employees. One of your main duties is to keep current on all safety information and regulations, especially OSHA standards for your industry. Each month you meet with the company safety committee to brief them of any changes in safety regulations and to follow-up on issues raised by the committee. In a recent email, the committee chair announced that *fall protection* is the current chief concern among the workers on the site. You offer to present a review of OSHA safety standards and procedures for *fall protection* at next week's safety meeting.

IT Across Careers Sample Scenarios

You have one week to prepare for this meeting. Use the Internet to gather information on current OSHA safety standards and procedures for *fall protection*. Your research should include information about fall protection equipment, such as guard cages, steps, toe boards, using tie-offs and lanyards, trip and fall hazards, etc. Verify if any of the regulations for fall protection equipment specifications have changed. Other helpful information might also include accident statistics relating to fall protection and recommended training courses.

Email a preliminary report of your findings to the committee chair one day in advance of the next meeting.

Presentation Applications

Project Manager

You are employed as a project manager (PM) by a large commercial general contractor. It is company policy that all PMs rotate through the presentation of monthly safety topics. For this month's safety topic, you have been tasked by the V.P. of Operations to develop a presentation to give to the company's field personnel on the use of personal protective equipment (PPE) for working on ladders and scaffolding. Your presentation should include requisite OSHA and industry safety standards, identification of hazards, selection of appropriate PPE, proper wearing of PPE, and maintenance and care of equipment.

You will have 30 minutes for your presentation followed by 10 minutes for Q&A.

Die Cast Engineer

You are a Die Cast Engineer. Your company is invited to be a vendor at the North American Die Casting Association's (NADCA) annual conference. Your supervisor asks you to design a 3D presentation on one of your Die Cast models. The presentation should include: a rotating visual of the die model; a view of the die model that allows the cavities to be viewed empty; a view of the die model that allows the finished product to be viewed in its cavity; a demonstration of the pins extracting the finished product; a clear image of the overflows and runners; and a transparency of the whole die model clearing showing water flow, bolt patterns and pin patterns. In addition to the 3D presentation, insert text to support the animation. For example, explain the ejection travel time of the model.

Your automated presentation should run as a continuous loop. The presentation should include at least 10 slides.

Recovery Room Nurse

You are a recovery room nurse in a 250 licensed bed facility. Your unit manager has asked you to give a presentation on "Patient Care in the Post-Operative Setting" to a group of new incoming nurses. Your presentation should include information on airway management (ABC's), types of drugs used in anesthesia, usual effects of the anesthesia drugs, onset of drug reaction, anesthesia drug reversal agents, and pain management.

You will have 40 minutes to present your topic and 15 minutes for Q&A. Your presentation must have a minimum of 9 slides but should not exceed 12 slides. Include a title page with your name and an outline page. Your presentation should also include a chart, graph, and some clip art to illustrate your talking points and transitions. Remember that the presentation is like an outline and does not need to have detailed information regarding the topic. That will be given in the oral part of your presentation.

IT Across Careers Sample Scenarios

Spreadsheet Applications

Environmental Chemist

As an environmental chemist for an environmental and science company in New York State, your job is to monitor local air quality indicators for number of different locations across the state of New York. Every morning, data recorded by the monitor machines at each local site arrive to you by 9:00 a.m. By 12 noon, you must analyze and summarize the data, draw conclusions or recommendations, and inform the results to local authorities.

This morning, three counties have sent data information collected from their monitoring equipment to you. One of sites posted the data on your intranet site; another provided data on disk, and the other sent their data by email.

Create a new spreadsheet so that each location has its own sheet in the workbook. Add formulas to the spreadsheet to total the hourly measurements, and then calculate an average and the standard deviation for each pollutant reported. Identify the AQI range for each pollutant (for each county). Plot the local reported data by pollutant. Compare the calculated results to the mandated air quality standards. Determine what the "Air Quality Index" category is for each location and write up your conclusions and recommendation to local authorities in for email or fax.

Farmer

You are looking into buying a different combine for your farming operation. You currently have your crops custom harvested. Last year you paid \$12,500 for someone to combine your crops. You need to determine how much you could afford to pay for a new combine by determining what your annual payments on a loan would be compared to the amount you currently are paying to have your crops custom harvested. For purposes of this lesson, the loan term will be a 5-year fixed interest loan at 8.5%. Loan payments for a new combine will be made annually and cannot exceed \$12,500. Use a spreadsheet application to organize your analysis.

Writing/Publishing Applications

PD Personnel Recruiting Committee Member

You are a member of your police department's Personnel Recruiting Committee. Your supervisor would like to improve and standardize the agency's recruitment, selection and hiring procedures of new officers and civilian staff. She has directed you to research what types of strategies are being employed by other agencies to attract and select qualified job candidates, and then develop a written set of guidelines that your department can use to recruit diverse candidates for the position of police officer.

The guidelines you develop must consist of at least 20 specific ideas, suggestions and/or instructions for advertising policing career positions, contacting and corresponding with prospective job candidates, and how to select the best qualified applicants.

Your finished guidelines will be reviewed by your supervisor and also by a member of the City's Human Resources Department to ensure that the guidelines will promote fair, reasonable, and consistent hiring practices by your agency.