Code of Ethics (files/codeofethics.htm)

- A page dedicated to fleshing out the code of ethics developed by IEEE-CS and ACM (V 5.2)
- This code is broken up into "Eight Principles" which are:
    - **Public**: Act consistently in the public interest
    - **Client and Employer**: Act in a manner that is in the best interest of their client and employer, consistent with the public interest
    - **Product**: Ensure that their products and related modifications meet the highest professional standards possible
    - **Judgment**: Maintain integrity and independence in their professional judgement
    - **Management**: Subscribe to and promote an ethical approach to the management of software development and maintenance
    - **Profession**: Advance the integrity and reputation of the profession consistent with the public interest
    - **Colleagues**: Be fair to and supportive of their colleagues
    - **Self**: Participate in lifelong learning regarding the practice of their profession and shall promote an ethical approach to the practice of the profession

About (files/feature.html)

- A window that displays emails for the web designers and creators as well as the graphical designers
- Explains the different features of the Ethical Simulator such as:
    - Restart
    - Random
    - Angel / Devil
    - Ethical Computer
    - Ethical Helper
    - Code of Ethics

Reset (files/.../reset.htm)

- Sends the user back to the beginning of the simulator with a random gender assignment
- It is designed so that a user can go back to the beginning if they make a decision they don't like and want to try again or perhaps go through the whole thing again, but with a different helper

Ethical Helper (files/Help/...)

- Starts at index.html
- The Ethical Helper is designed to provide information and perspectives that you may not have considered when you were making your decision.

- When activated, a pop up window will appear with a paragraph or so of information explaining what may be good or bad about the decision you are about to make
- After clicking your decision, you are not locked into it as you can close the Ethical Helper window and re-consider the choices you have been given by clicking "Rethink the decision"
- You can also continue on with your decision by clicking "Continue" which will take you to the next part of the simulation based on what you decided to do
- With the pros and cons of your decision, the Ethical Helper also tries to push you towards a more ethical decision while dissuading you from making unethical decisions
- Effectively, it hints at the possible outcomes you may face if you make a certain decision

Angel / Devil (files/Angel/...)

- Starts at aindex.html
- Based on "The Angel / Devil Debate" from "Computers, Ethics, and Social Responsibility" where "Devil" gives his reasoning why you should make the choice followed by the reasoning of the "Angel
- Overall, this tool is designed to guide the user as to which decisions are right and wrong by using the popular Angel / Devil trope to make right and wrong more concrete for the purposes of teaching even when when it isn't always black and white in the real world
- The "Devil" in the simulator tries to discourage the user from trying to find a constructive way to solve the problem and instead encourage the user to do nothing which will ultimately will lead to a poor outcome for the client, your employer, and you.
- The "Angel" in the simulator tries to discourage the easy way out of a problem and instead encourages transparency and working actively towards solving the problem which will lead to a positive outcome for the client, your employer, and you
- The "Angel" encourages ethical decisions while the "Devil" encourages unethical ones

Ethical Computer (files/Computer/...)

- Starts at ecindex.html
- When you hover over a decision, the "Ethical Computer" cites principles that are from relevant to the situation and decision from the code of ethics that this simulator follows
- The code of ethics can be found in files/codeofethics.htm which was created by the IEEE-CS /ACM Joint Task Force on Software Engineering Ethics and Professional Practice and was approved for the purposes of teaching. It is Version 5.2 of the Software Engineering Code of Ethics and Professional Practice
- Based on "The Moral Computer" from "Computers, Ethics, and Social Responsibility" which is programmed with "correct" moral rules to tell the user what the "right" thing to do is but instead, we are given the "correct" moral rules by the Ethical Computer and we decide what the "right" decision is

- This Ethical Computer is useful in applying the ethical principles to decisions in this example, but not every real world example will be as simple as this one. In real life it may be harder to actually apply the ethical principles and it may not always be clear which principal addresses a situation, there may not even be one that to address it

1a.html

You are a 32 year old male. You have received a BS degree in computer science and a MS degree in software engineering. You have worked as a professional computer scientist for eight years. You have spent the last five of those years working for QCA (Quality Computing Associates), a small firm that specializes in medical systems, as a software engineer. QCA has been in business for twenty-five years and has achieved a very prominent status. While at QCA you have produced good results and are thought of highly. In your time at QCA you have progressed from a programmer to a project manager.

1b.html

You are a 32 year old female. You have received a BS degree in computer science and a MS degree in software engineering. You have worked as a professional computer scientist for eight years. You have spent the last five of those years working for QCA (Quality Computing Associates), a small firm that specializes in medical systems, as a software engineer. QCA has been in business for
twenty-five years and has achieved a very prominent status. While at QCA you have produced good results and are thought of highly.
In your time at QCA you have progressed from a programmer to a project manager.

2.html

A new medical device has been developed that will greatly improve the ability of emergency medical services. The device is the MARC, the Medical Assessing and Response Computer, and is now in its second version referred to as MARC II. MARC was designed in 1999 by Remote Health Services, Inc. and received FDA approval in 2001. MARC is an implantable device designed to be inserted under the skin on the back of the patient's hand. MARC stores medical information that can be accessed by emergency personnel via a handheld scanner. Vital signs such as heart rate and blood pressure are monitored by MARC and abnormal levels are recorded. GPS (Global Positioning System) tracking has been added to the device in the second release. MARC can now notify emergency personnel of an occurring crisis and they can respond to the location obtained from GPS. The system will be of great help since it will alert emergency personnel of a problem, notify them of the location, what the emergency is, and will make all medical information available at the scene.

3.html

Your company, QCA, has been hired by HeWell Alliance, a large medical organization, to develop a software system to utilize MARC II. You have been assigned the project and will head the team assembled to complete the project. The system requested by HeWell will make use of all of the features available in the MARC II. The system will be deployed at a major hospital, once the system has been proven successful at this test site it will then be used throughout the entire organization. You have been working on the system for almost a year and the project deadline is rapidly approaching. So far the system creation has gone smoothly, the team has kept on schedule and the system has passed all of the testing to date. However when all components of the system are put together a bug appears. For the most part the system operates to perfection, but very rarely the system will report an emergency and request for personnel to respond, when in fact there is no emergency. You have begun to track down the error but you are certain that you cannot find the bug, fix it, and complete the system on time.

4.html

You submit the system on time to the organization and they are very pleased with both the system and your work. The system is put into operation and runs smoothly. You move onto other projects and continue to receive praise for your work. Approximately six months after the submission of the MARC II software system HeWell contacts QCA and notifies them that the system has begun experiencing problems. The problems reported are the same as those that arose from the bug that you knew of in the system. HeWell wants you brought in to determine if the problem is with the software and if so to find and correct the error. Time is of the essence because the organization is loosing a considerable amount of money from this hospital by dispatching emergency personnel when they are not needed. There is also concern that this error could potentially stretch emergency services so thin at some time that they would be unable to respond to a true emergency. However, since people pay a monthly fee for the service the organization wishes to keep the system up and running if at all possible.

41.html

Ever since you submitted the MARC II system as complete even though you were aware of a substantial error you have worked feverishly on a patch to complete the system before any harm can occur. You have come extremely close to completing a fix for the system when you hear that HeWell has reported the error to QCA. When you hear about this you inform QCA and the organization that you had knowledge of the bug and that you have almost completed a patch to fix the system. Upon hearing that you turned the system over as complete, even with a known bug, HeWell pulls the MARC II system contract from QCA citing negligence and breach of contract. QCA is shocked to hear of your blatant disregard for company policy and informs you in the nicest manner possible that you are no longer employed by Quality Computing Associates.

The Ethical Simulator hopes that you have luck in finding a new job!

42.html

You begin working to correct the software system and make very good time since you already had an idea of what was causing the error. In very short order you have completed a patch that fixes the bug in the software. Once the patch has been applied the system passes all tests and over the next three months runs without one single glitch. Once again HeWell heaps praise on you for your great work. Six months later the organization begins the install of the system throughout the entire organization. During one of the installs a technician discovers evidence in your documentation that you in fact knew of the problem with the software before you submitted the software system as complete. With this new knowledge HeWell files lawsuits against QCA and you individually, claiming negligence. Needless to say you are also released from your position at QCA.

The Ethical Simulator wishes you luck during your upcoming trial.

43.html

After so long you had almost put the MARC II system out of your head, and now HeWell wants you to come back and fix the problem that you left in the system in the first place. You wish to avoid further complications with HeWell, so you tell them that the problem is not with the software, that the problem is probably an error with the MARC II itself and that you can do nothing about it. You also tell them that it is not possible for you to come in and give the system a thorough review to insure that the problem is not with the software because you are currently involved in a major project. The organization accepts your explanation and continues running the system while conferring with Remote Health Services, Inc. about possible errors with the MARC II. Remote Health Services, Inc. is able to show that there are no glitches in the MARC II and points out that the MARC II is being used successfully in other areas. They assert that the software system is the culprit here. One month after this the hospital and its owner, HeWell, are named in a lawsuit. Whenever emergency personnel are dispatched for a subscriber to the hospital's MARC II system the subscriber is charged a fee. These fees were charged even if the emergency was not real. In turn the organization name QCA and you individually in a lawsuit.

The Ethical Simulator would like to wish you luck on your upcoming trial.

5.html

The project deadline has been reached and you have not been able to remove the only known bug from the system. You have a meeting with the HeWell's upper management and inform them that the system is completed and works exactly as planned except for the one glitch. You explain in detail what errors are generated by the problem and what progress you have made in attempting to rectify the situation. HeWell informs you that they will take one week to explore their options and encourages you to keep working to solve the problem. At the end of the week

HeWell meets with you again and requests to know what you think should be done in this situation. They have decided to follow your advice since you know more about the software and the problem than anyone else. They feel that you have a better feel for the extent of the damage, if any, that could be caused by the error in the software.

51.html

You have told the HeWell that you feel it would be safe to deploy the system while continuing to work on a patch to fix the error. You do specify that this will only work if ways of working around the glitch can be found. You have suggested some ways to work around the glitch until you can complete a patch to remove the error and HeWell has accepted your proposal. All subscribers to the system have been notified that until the patch is complete automatic emergency response is not available. However, if an emergency is reported by the MARC II system the hospital will make every attempt possible to verify the emergency and if real then emergency personnel will be dispatched. The system goes operational and you continue to work on the problem. After three months you have finally completed the patch. The patch is applied and the system passes all tests. Six months later the software system has run continuously, offering all features without fail. HeWell has begun the deployment of the system throughout the entire organization. The patch was successful and so was the software system, your work has saved many lives.
The Ethical Simulator wishes to congratulate you on your success.

52.html

You inform HeWell that the only safe way to proceed is to postpone the deployment of the system while you try to remove the bug. The hospital agrees with you and delays the system start. Three months later you have removed the glitch from the software and the system has passed all tests. The system goes into operation and for the next six months performs perfectly. HeWell then installs the software system organization wide and begins to utilize it on a wide scale. For the next year the system works almost flawlessly across the entire organization. The company is very pleased with both QCA and you. You receive a promotion from QCA and requests for QCA's services on MARC II systems begin to pour in.
The Ethical Simulator would just like to say great job.

53.html

After informing HeWell that you feel the glitch will not cause any major problems with system performance and would be more cost effective to leave into the system you move on to other projects that QCA has. After the system has been running for six months HeWell must pull the plug on it. The system has progressively begun to report more and more false emergencies and since every time emergency personnel are dispatched the subscriber is charged a fee many subscribers have dropped the service. HeWell tried offering a cut-down version of the service,

one minus the automatic emergency response, but cannot attract enough customers. HeWell has contacted QCA and informed them of the advice that you provided them with. Your supervisor calls you to the office and proceeds to tell you how you have hurt the reputation of QCA and how you have violated the code of ethics QCA subscribes to and company policy. After your supervisor is finished telling you of all the trouble you have caused you are also informed that you are fired.
The Ethical Simulator wishes you luck in the unemployment line.

6.html

After informing HeWell that you feel the glitch will not cause any major problems with system performance and would be more cost effective to leave into the system you move on to other projects that QCA has. After the system has been running for six months HeWell must pull the plug on it. The system has progressively begun to report more and more false emergencies and since every time emergency personnel are dispatched the subscriber is charged a fee many subscribers have dropped the service. HeWell tried offering a cut-down version of the service, one minus the automatic emergency response, but cannot attract enough customers. HeWell has contacted QCA and informed them of the advice that you provided them with. Your supervisor calls you to the office and proceeds to tell you how you have hurt the reputation of QCA and how you have violated the code of ethics QCA subscribes to and company policy. After your supervisor is finished telling you of all the trouble you have caused you are also informed that you are fired.
The Ethical Simulator wishes you luck in the unemployment line.

61.html

You have agreed to HeWell's wish to deploy the system immediately. You and the organization have come up with some ways to work around the glitch until you can complete a patch to remove the error. All subscribers to the system have been notified that until the patch is complete automatic emergency response is not available. However, if an emergency is reported by the MARC II system the hospital will make every attempt possible to verify the emergency and if real then emergency personnel will be dispatched. The system goes operational and you continue to work on the problem. After three months you have finally completed the patch. The patch is applied and the system passes all tests. Six months later the software system has run continuously, offering all features without fail. HeWell has begun the deployment of the system throughout the entire organization. The patch was successful and so was the software system, your work has saved many lives.
The Ethical Simulator wishes to congratulate you on a job well done.

62.html

Upon hearing your refusal to sign off on the deployment of the MARC II software system HeWell contacts QCA complaining about your work and your refusal to deploy. QCA confers with you about your decisions and the reasoning behind them. After hearing you out, QCA sides with you and informs HeWell that they back your decision to refuse to sign off on the deployment. You once again meet with HeWell's upper management. You discuss with them your fears regarding what will happen if the system is deployed with the known bug in it. After hearing that QCA backs your decision and listening to your fear HeWell accepts your recommendations and decides to wait for the completed system. Three months later you have removed the error from the software system and it has passed all tests. After one year of operation the system has functioned remarkably well and has been of great benefit to quite a number of its subscribers. HeWell is preparing to begin the deployment of the software system organization wide.

The Ethical Simulator would like to congratulate you on sticking to your guns.