# IT 101 Computer Fundamentals

## Spring 2019 Assignment and Presentation #1

Assignments are 50% of your grade, Presentations are 30%, Exams are 20%

In order to demonstrate mastery of the concepts and vocabulary covered in the first half of the semester, students will form groups of 4 and do an assignment. Each group’s assignment will cover hardware, data, networking and security. Each group will then be given 20 minutes to present their work to the class.

Each group will choose a presentation from the following:

1. Create a document. Write 1 paragraph describing hos to convert hexadecimal numbers to and from decimal numbers. Write 1 paragraph describing how to convert hexadecimal numbers to and from binary. Write 1 sentence describing the difference between a hard disk drive and an SSD drive. Convert all text to ASCII using decimal numbers and save it as second document. Create a slide deck (use PowerPoint so we can display them on the projector in the classroom from the classroom computer). Your deck should include (at a bare minimum) a title slide, each student’s name, the date, an image of the original document, an image of the hexadecimal document, a depiction of a good way to compress the documents you created. Your presentation will be to explain your assignment to the class and walk them through it.
2. Create a document explaining how to find the network (TCP/IP) address on a Mac, a PC, an iPhone and an Android phone. Explain the difference between an internal IP address and an external (public) IP address. Demonstrate how to convert the IP address to decimal form. Describe what a firewall is and how it protects devices on a network. Describe what a “packet” is and how data is transferred across a network. Create a slide deck (use PowerPoint so we can display them on the projector in the classroom from the classroom computer). Your deck should include (at a bare minimum) a title slide, each student’s name, the date, and the high points of your document. Your presentation will be to explain your assignment to the class and walk them through it.
3. Create a relational database that would be appropriate for allowing students to sign up for tutoring sessions. It should allow for any number of tutors. Tutors can specify the subject they tutor in (only 1) as well as any number of tutoring session hours when they will be available over the semester. Students can sign up for a tutoring session by choosing a tutor and a session. Determine the best way to turn in a copy of the database, with some sample data, in an electronic format. Create a slide deck (use PowerPoint so we can display them on the projector in the classroom from the classroom computer). Your deck should include (at a bare minimum) a title slide, each student’s name, the date, how you chose the data type of each column in the tables and screen shots of your database as well as the SQL commands required to operate the system. Your presentation will be to explain your assignment to the class and walk them through it, showing them how you added and queried the data to make the system work, as well as any indexes you would recommend adding for performance as the system becomes wildly popular.
4. Show what happens when you browse a web site from a computer browser from the perspective of the hardware and data. Create a slide deck (use PowerPoint so we can display them on the projector in the classroom from the classroom computer). Your deck should include (at a bare minimum) a title slide, each student’s name, the date, and the flow of data from the user’s keyboard to the server and back to the browser. Show the data in binary format. Discuss how the user’s request finds the appropriate web site on the internet, any security being used, any compression being used and how data travels through each major piece of hardware on its journey.

## Grading

Assignments will be graded on correctness, completeness, clarity of description and quality of presentation (spelling, grammar, formatting, professional look). Presentations will be graded on how effectively the material is presented. Late assignments will not be accepted.

Submit your assignment as professional documents, slides and other materials. Bring a hard copy of the materials to be turned in and submit an electronic copy either by email or USB thumb drive.

For the presentation, you will be teaching the material to your classmates. Add any tips or tricks that have helped you. Create flash cards, draw pictures, create a jingle, helpful web sites; do whatever you feel makes the material easiest to learn and remember. Make it serious or make it fun, make it epic, but whatever you do, make sure everyone learns and remembers what you’re presenting. That is the goal of the presentation. Dress professionally, act professionally, but most importantly, know your stuff! You will be given 5 minutes after your presentation to answer questions and discuss your presentation with the class.

## Extra Credit

Students can earn extra credit by creating an extra 5-10-minute presentation on any computer fundamentals related subject we have touched on in class. Your material should not be something we’ve covered in class, but rather something you researched and learned about the subject and want to share. Extra credit can be earned as an individual or group.