CS101 Introduction to Computing
Lecture 1
Introduction
Charles Babbage (1791-1871)

- Creator of the Analytical Engine - the first general-purpose digital computer (1833)
- The Analytical Engine was not built until 1943 (in the form of the Harvard Mark I)

The Analytical Engine
- A programmable, mechanical, digital machine
- Could carry out any calculation
- Could make decisions based upon the results of the previous calculation
- Components: input; memory; processor; output

Ada, Countess of Lovelace (1815-52)
- Babbage: the father of computing
  Ada: the mother?
- Wrote a program for computing the Bernoulli’s sequence on the Analytical Engine - world’s 1st computer program
- Ada: A programming language specifically designed by the US Dept of Defense for developing military applications was named Ada to honor her contributions towards computing

A lesson that we all can learn from Babbage’s Life
- Charles Babbage had huge difficulties raising money to fund his research
- As a last resort, he designed a clever mathematical scheme along with Ada, the Countess of Lovelace
- It was designed to increase their odds while gambling. They bet money on horse races to raise enough money to support their research experiments
- Guess what happened at the end? The lost every penny that they had.
  - Fast
  - Bored
  - Storage

Here is a fact:

It could analyze up to 300 billion chess moves in three minutes

In 1997 Deep Blue, a supercomputer designed by IBM, beat Gary Kasparov, the World Chess Champion
That computer was exceptionally fast, did not get tired or bored. It just kept on analyzing the situation and kept on searching until it found the perfect move from its list of possible moves …

Goals for Today:
- To develop an appreciation about the capabilities of computing
- To find about the structure & policies of this course
CS101 Introduction to Computing

Course Contents & Structure

Course Objectives
To build an appreciation for the fundamental concepts in computing
To achieve a beginners proficiency in Web page development
To become familiar with popular PC productivity software

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Fundamental concepts

2.
Intro to computing

Evolution of computing
Computer organization
Building a PC
Microprocessors
Binary numbers & logic
Computer software
Operating systems
Application software
Algorithms

3.
Development methodology
Design heuristics
Web design for usability
Computer networks
Intro to the Internet
Internet services
Graphics & animation
Intelligent systems
Data management
Cyber crime
2. **Web page development**

3. **Web Development**
   - The World Wide Web
   - Making a Web page
   - Lists & tables
   - Interactive forms
   - Objective & methods
   - Data types & operators
   - Flow control & loops
   - Arrays
   - Built-in functions
   - User-defined functions
   - Events handling
   - String manipulation
   - Images & graphics
   - Programming methodology

**Productivity Applications**
- Word processor
- Spreadsheet
- Presentation software
- Database

**Instructor:**
Altaf Khan
altaf@vu.edu.pk

**Course Web Page:**
http://www.vu.edu.pk/cs101

**Textbooks:**
- UC - Understanding Computers (2000 ed.)
- JS - Learn JavaScript in a Weekend

**Reading Assignments**

Please make sure to read the assigned material for each week before the commencement of the corresponding week.

Reading that material beforehand will help you greatly in absorbing with ease the matter discussed during the lecture.

Check your e-mail often for announcements related to this and other VU courses.

**Marks distribution ...**

**Assignments (15%)**
- Almost one every week, 13 in all
- No credit for late submissions
- The lowest 2 assignment grades will be dropped

**Midterm Exam (35%)**
During the 8th week
- Duration: One hour
- Will cover all material covered during the first seven weeks

**Final Exam (50%)**

During the 16th week
- Will cover the whole of the course with a slight emphasis on the material covered after the midterm exam
- Duration: 2 hours

**First Assignment**
- Send an email message to me at altaf@vu.edu.pk with the subject “Assignment 1” giving me some information (in around 50 words) about what you see yourself doing ten years from now
- Go to the CS101 message board and post a message (consisting of approx. 50 words) about how we could make the contents of this course more suitable for your individual needs. The subject for this message should be “Assignment 1”
- Consult the CS101 syllabus for the submission deadline

**A suggestion about unfamiliar terms**
- We try not to use any new terms without explaining them first
- However, it is not possible to do that all the time
- If you encounter any unfamiliar terms during the lectures, please note them down and consult the GLOSSARY provided at the end of the “Understanding Computers” text book for their meaning

**Let’s summarize the things that we have covered today?**

A few things about:
- the very first digital computer & its inventor
- the capability of modern computers
- the structure and contents of CS101

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**In the Next Lecture …**

We’ll continue the story of the evolution of digital computers form the Analytical Engine onwards.
We’ll discuss many of the key inventions and developments that he lead to the shape of
the current field of computing.