

## **Emerging Tech & Artifact Update**

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### **1. What is the identification and description of each technology?**

The first technology that has “changed the game” for the computer science world is cloud computing. Previously, organizations had to scale and operate on-site or off-site resources for processing, networking, storage, security, and other components that required purchasing, construction, management, and housing. Cloud computing has alleviated most of the responsibilities of providing infrastructure by having a third party manage the processes of providing the hardware and networking. This has allowed development teams to almost exclusively focus on developing valuable software. The second technology that has changed how the computer science world has evolved is artificial intelligence. While I mentioned AI (along with quantum computing) in the previous update, it remains an important technology to address here. AI will lead computer science into the future, offering lightning-fast results (though, perhaps at the cost of accuracy or more costly resources) that would take humans much longer to compile.

### **2. What are the likely impacts on computer science or your career?**

Both of these technologies will have an incredible impact on the computer science field. Cloud computing will offer nearly unlimited solutions for organizations to store and deploy, including security measures, activity logging, update or rollback management, and much more. This allows organizations to have their data and programs handled for them so they can focus on the business model and allow developers to focus on the logic, for a potential fraction of the cost. Scalability will be a critical aspect of cloud computing, allowing organizations to expand as their technology

and business needs grow. Artificial intelligence will also be a major player in automation (much like cloud computing, where the deployment is automated for a price). It will allow organizations to create their own software with a much simpler understanding of key concepts in software engineering. It will allow developers to streamline common tasks to automation (such as testing), and allow for much quicker code development through blazing-fast research results.

### 3. How might the two technologies impact humans, communities, or the world?

While automation could potentially (and has historically) reduced jobs in the fields that it replaces, it also creates new (and generally higher-paying) jobs in the same field or industry. Moreover, the expansion of automated resources could help lead the way for innovation when focus can be applied to delivering higher value software. Speed (such that can be offered by AI) can also increase the efficiency of discoveries and data collection from those discoveries. It can lead to medical breakthroughs as well. However, with cloud computing, storing all data in centralized locations can lead to other issues, such as security or accessibility should the system fail. For example, if a cloud service is storing and processing functionality for a bank and goes offline or otherwise fails, access could be limited or completely restricted to those users, which could be catastrophic on individual or organizational levels. A careful exercise of ethics, morals, and best practices is required when handling these two technologies.

### 4. Which course outcomes have you achieved so far, and which ones remain?

All 5 of the course outcomes have been achieved through the enhancement of the binary search tree and animal shelter dashboards.

<b>Checkpoint</b>	<b>Software Engineering &amp; Design</b>	<b>Algorithms &amp; Data Structures</b>	<b>Databases</b>
<b>Name of Artifact Used</b>	<b>Name:</b> Binary Search Tree ABC University  <b>Origin:</b> CS-300 Data Structures & Algorithms	<b>Name:</b> Binary Search Tree ABC University  <b>Origin:</b> CS-300 Data Structures & Algorithms	<b>Name:</b> Grazio Animal Shelter  <b>Origin:</b> CS-340 Client/Server Development.
<b>Status of Initial Enhancement</b>	Enhancement finished and tested with Add and Delete functionality.	Finished and Tested for inserting and deleting rebalancing	Finished and tested all CRUD operations, created a standalone .exe to operate the entire program offline.
<b>Submission Status</b>	1 <sup>st</sup> submission complete	1 <sup>st</sup> submission complete	1 <sup>st</sup> submission complete
<b>Status of Final Enhancement</b>	Complete	Complete	Complete
<b>Uploaded to E-Portfolio</b>	Uploaded	Uploaded	Uploaded
<b>Status of Finalized Portfolio</b>	Completed	Completed	Completed – Working on professional assessment.