Computer Systems Analysts

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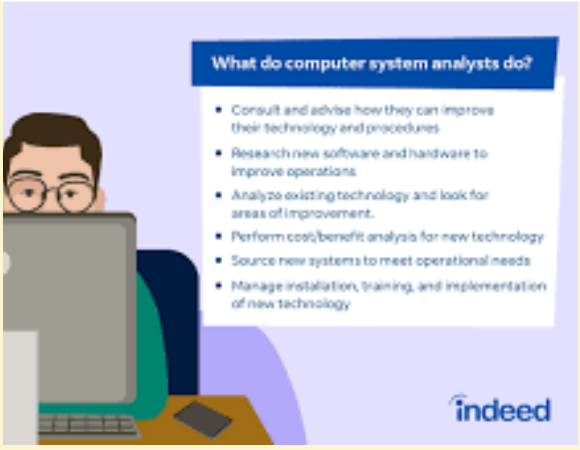

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A Computer Systems Analyst - The Introduction

A computer systems analyst is rated the #10 best STEM jobs. As a CSA, you would design and improve computer systems and processes. Our team chose this job because it requires three skills; critical thinking, collaboration, and communication, which are also key requirements in VEX.

The Three Skills:

CRITICAL THINKING -

A CSA uses data to analyze and predict trends in the future. They also plan for technology demands because of anticipated changes. Once they have done this, they evaluate the costs of technological upgrades.

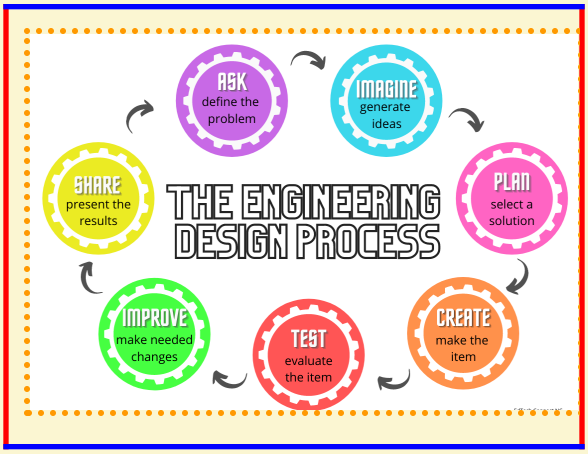
COLLABORATION -

As a CSA, you would have to collaborate with others to be successful. You would have to work with your management to determine your top priorities and goals. Once you have chosen these, you have to create and communicate the projects' timelines.

COMMUNICATION -

A CSA must make reports on the impacts of various technological advancements. They must also create user-friendly instruction manuals that are understandable by the general public.

Also, to be a CSA, you must have knowledge of technology, business, and the engineering design process.



A CSA - The Engineering Design Process

A CSA must apply the engineering design process to be a successful worker. These are the steps to the process, and how a CSA applies it to solve problems:

1. DEFINING THE PROBLEM- For a CSA, defining the problem means understanding their client's business. In order to improve the business's computer system, the analyst must know and understand its flaws.

2. GENERATING IDEAS- After a CSA has defined the problem, they must prepare analyses of the cost and rewards of another system and/or upgrades to the current system. They must consider the needs of the company, as well as the memory and speed a system/network needs.

3. SELECTING A SOLUTION- Once the analyst has generated ideas for the computer system, they must create a chart for programmers and engineers, who then create a computer system that meets the business's current and future needs.

4. MAKING THE SYSTEM- Once the system's upgrades have been approved, work can begin. The CSA supervises the installation, configuration, and implementation of the new system or the upgrades to the current one.

5. EVALUATING THE SYSTEM-

When the system is in use, a CSA conducts deep tests and evaluates data trends.

6. MAKING NEEDED CHANGES-
   If the analyst finds any problems in the system, they would have to find a solution to them.

7. SHARING THE RESULTS-
   Once the analyst has fixed the system, they must then make instruction manuals for the client.

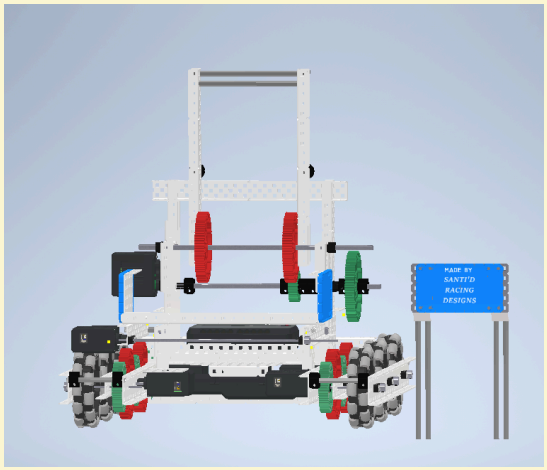
8. REPEAT!
   If the system has another problem, the CSA must repeat the process to fix it.

A CSA - The Comparison to VEX

JOE WALKER MIDDLE SCHOOL VEX JETS

At Joe Walker, we use the design process to create an efficient robot that can complete every aspect of the 2023-2024 VRC game, Overunder. In comparison to a CSA, our way of using the design process is diverse in some ways, and similar in others.

1. DEFINING THE PROBLEM (COMPARISON)
   While a computer systems analyst analyzes the pros and cons of the system, we test the robot to find problems. An effective way to find problems is to build the robot in a software called Autodesk Inventor. This is our robot in Inventor, made by Santiago Viramontes:



We use Autodesk to analyze the robot for potential problems.

2. GENERATING IDEAS (COMPARISON)
   While a CSA prepares analyses of the cost and rewards of a system, we immediately get to work on creating different prototypes. We divide the

workload, with 1-2 people working on each prototype.

3. SELECTING A SOLUTION (COMPARISON)
   While at this phase, the CSA prepares charts for the new system, we at Joe Walker test each prototype. If a prototype works, we use it. If no prototypes work, we restart the design process.
4. MAKING A SYSTEM (COMPARISON)
   While the computer systems analyst would start work on the system now, we would get to work on preparing the robot for the attachment of the prototype.
5. EVALUATING THE SYSTEM (COMPARISON)
   Now, the analyst must evaluate the system while in use. In summary, the system is in beta. Our approach is similar, as this is the time when we test the prototype again. We do this because the additional stress and weight of the robot is important in the functionality of the prototype.
6. MAKING NEEDED CHANGES (COMPARISON)
   If any problems are found with the system, it's time for the analyst to fix them, just like it's time for us to fix our problems. We keep the prototype on the robot, though, so we don't have to waste time putting it back on.
7. SHARING THE RESULTS (COMPARISON)
   When it's time to present their hard work, the CSA must make it so the system is easy and usable by anyone. We take the opposite approach. When we go to a tournament, we want to tell the judges about every aspect of the robot, as well as the process we took to make it, in the highest detail.
8. REPEAT! (COMPARISON)
   If problems arise while the robot is in action, we repeat the process, armed with knowledge learned from our mistakes.

A CSA - From VEX to CSA

We believe that VEX has prepared us for this career, as in VEX we learn to program all our motors, pistons, etc. This is an important skill for CSAs, as computer science is necessary for success in this field. With this knowledge of programming, we are ready to tackle the job of a CSA.

However, there are many jobs to choose from. Anyone can pursue any job, whether it is a CSA, mechanical engineer, scientist, or developer. In the

world of technology, the future is open for business!

Credits:

Source:

A. Mimio

Images:

A. Youtube
B. See Jay Systems
C. Indeed
D. The VEX Jets!