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Pursuing Computer Programming

Introduction

Towards the end of my freshman year, it was time to decide my classes for my sophomore year. On the list of classes I saw Advanced Placement Computer Science Principles and decided to choose it as an elective because I wanted to learn more about computers. In Advanced Placement Computer Science Principles, I learned the theory of different computer science topics, and it sparked an interest for computer science. During my junior year of high school, I took Web Application Development at the Center of Advanced Research and Technology (CART) where I was able to engage in school projects that developed a greater interest for programming. Pursuing a career in computer programming is a great idea as it allows people to create programs that decide the tasks that a computer completes.

Career Duties

The career duties of a computer programmer consists of creating, updating, and testing computer software and applications using multiple computer languages. The computer languages that computer programmers use to write programs include, C++, Java, Python, and many more. (U.S. Bureau of Labor Statistics). Before creating programs a computer programmer must analyze data and information given them to create software that fits the given requirements. Part of the duties given to computer programmers is to test and run programs to fix any occurring errors. To fix issues computer programmers will make changes to programs to create the desired

outcome (O*Net OnLine). Creating and updating programs are large duties that computer programmers are responsible for handling.

Work Environment

The work environment of computer programmers consists of office settings that may be in a company building or in their own home. Due to the heavy use of computers, many computer programmers have the option to work remotely from their home. The largest employers for computer programmers are computer systems design and related services, they employ 32 percent of all computer programmers. The typical work schedule for a computer programmer is working full time (U.S. Bureau of Labor Statistics). The work schedule of a computer programmer is self-controlled, with the responsibility of managing their own time it is important for computer programmers to have time management skills (O*Net OnLine).

Important Qualities

The important qualities that a computer programmer should include, analytical, communication, critical thinking, time management and problem solving skills. Analytical skills are important for computer programmers because it is important for programmers to understand complex instructions and code. With the collaborative environment that computer programmers work in, it is important that they know how to effectively communicate with multiple team members to coordinate work during large projects (U.S. Bureau of Labor Statistics). When working with others it is important to use time wisely for the sake of everyone on the team. Computer programmers must have time management skills to complete given tasks in the given time. During the process of programming many errors will occur, this is why it is important that programmers have the skill of critical thinking and problem solving to quickly come to solutions (O*Net OnLine).

Education/Experience Requirements

To pursue a career as a computer programmer it is recommended to have an education level of at least a bachelor's degree in computer science or a similar degree. In school for a computer science degree programmers learn the skills to learn computer languages that are used in their careers as a computer programmer. Education for computer programmers never stops as technology rapidly changes over the years and it is important that they keep up with new technologies required for their job (U.S. Bureau of Labor Statistics). Education for becoming a computer programmer does not have to always come from a degree. A common path for computer programmers is a self-study bootcamp that covers the essential knowledge to becoming a computer programmer. Studying through a bootcamp will achieve the essential computer science certificates that show employers that they meet the education requirements (Wintemute, Doug). Education is not the only requirement for getting a job as a computer programmer, work experience is heavily favorable. It is preferred that computer programmers have work experience in addition to the correct education level. Experience can be earned through internships in related career fields. Education and work experience are both important to becoming a computer programmer (U.S. Bureau of Labor Statistics).

Salaries

The salary of a computer programmer is affected by the work industry, location, and level of education. Computer programmers have a median annual salary wage of \$93,000 in May 2021. The top four industries that computer programmers work in are, software publishers, finance and insurance, manufacturing, and computer systems design and related services. The highest paid industry for computer programmers are software publishers (U.S. Bureau of Labor Statistics). An entry level salary for computer programmers is a yearly salary of \$45,343, the top

10% of computer programmers earn a yearly salary of \$131,120. The salary of a computer programmer is dependent on the state that a computer programmer works in. The state with the highest average salary for computer programmers is Washington with an average annual salary of \$118,577 ("Computer Programmer Salary"). The level of education that a computer programmer has will also have an impact on their salary. The average salary for computer programmers with a Bachelor's degree is \$80,000, with a Master's degree the average salary increases to \$99,000.

Job Outlook

The job outlook for computer programmers is at an expected decline due to automation and remote openings. According to the U.S. Bureau of Labor Statistics, the employment for computer programmers is at a decline of 10 percent from 2021 to 2031. As technology advances towards automating repetitive tasks, work that computer programmers complete can begin to be automated. Automation is a benefit for computer programmers because it saves them time with their work, but it reduces the amount of computer programmers necessary to complete a job (U.S. Bureau of Labor Statistics). Other than automation, software programming jobs are beginning to move abroad or to remote locations (Webb, Holland). Despite the decline to software programming jobs there will still continue to be job openings from those that retire or switch careers.

Educational Institution Options

An education is important for pursuing a career as a computer programmer, for achieving the required level of education there are options for educational institutions. The first option for acquiring the skills needed for a job is getting a college degree for computer science. The school that one goes to does not matter as it is about the computer science degree that will meet the

educational requirements for getting a job. A great school for a degree in computer science would be University of California, Berkeley. UC Berkeley is ranked in the top three of best schools for computer science in the United States (Electrical Engineering and Computer Science Berkeley). College is not the path for computer science education, there are many paid and free courses online that teach everything required to become a computer programmer. Coursera offers online courses that when completed will give certifications. Coursera is a good educational institute because it includes certifications from large tech companies such as IBM, Google, and Meta (Coursera). College and online courses are great resources for achieving the skills and education required to become a computer programmer.

Conclusion

If I did not enroll into the class of Advanced Placement Computer Science Principles I would not have developed such an interest for programming. Without an interest in programming, I would not have applied for the Web Development lab at CART, where my interest in programming sparked even more. I personally have the plan to pursue a career in computer programming due to the connections with math and problem solving that the career offers.

Works Cited

- “Computer Programmer Salary.” *ComputerCareers*, 28 Aug. 2022,
www.computercareers.org/computer-programmer-salary. Accessed 6 Mar. 2023.
- Coursera. *Coursera*, www.coursera.org, Accessed 27 Feb. 2023.
- Electrical Engineering and Computer Science Berkeley. *University of California Berkeley*, 2023,
eecs.berkeley.edu. Accessed 6 Mar. 2023.
- O*Net OnLine. *United States Department of Labor*, Feb. 2023,
onetonline.org/link/summary/15-1251.00. Accessed 24 Feb. 2023.
- U.S. Bureau of Labor Statistics. *United States Department of Labor*, 8 Sep. 2022,
bls.gov/ooh/computer-and-information-technology/computer-programmers.htm.
Accessed 24 Feb. 2023.
- Webb, Holland. “Computer Programmer Career and Salary Outlook.” *ComputerScience.org*,
13 Feb. 2023,
computerscience.org/careers/computer-programmer/career-outlook-and-salary.
Accessed 27 Feb. 2023.
- Wintemute, Doug. “Computer Science Degree Overview.” *ComputerScience.org*, 24 Feb. 2023,
www.computerscience.org/degrees. Accessed 5 Mar. 2023.