

Report Introduction

This report is written to inform Students about careers in software development and what journey to take to get the best possible outcome.

Subject Introduction – Career Path And Why

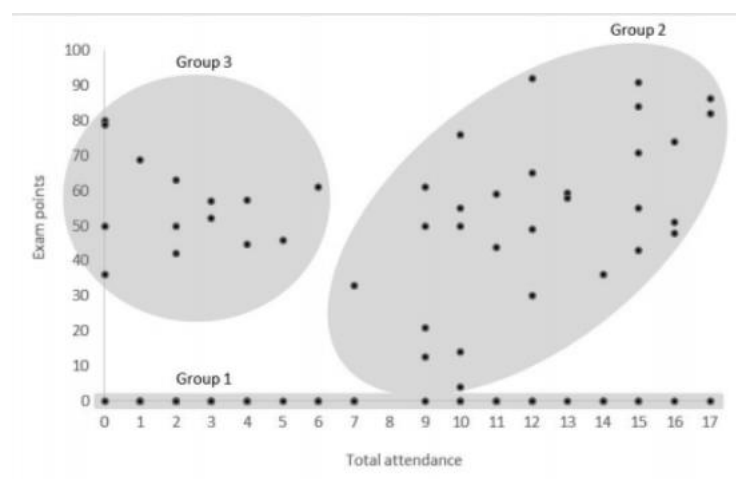
The recommendation for software development stems from a multitude of motives which range from salary to excitement.

Software development is an ever changing, exciting and innovative section of computing to be involved with. Although the fact that it's a fast-moving industry may seem daunting, it's an incredibly rewarding industry to take part in. In software development it is required that you can identify current problems and come up with a creative, computational solution; design it, build it, debug it, deploy it, and maintain it.

What To Focus On At University

In order to kickstart a good working career in software development, you must first gain the appropriate qualifications, experience, and knowledge of a professional working environment.

It is imperative that all lectures and labs are attended as well as external learning by yourself. A high attendance is related directly to your grades in almost all cases. The paper written by Anna Lukkarinen et al (2016) displays a variety of data both supporting and refuting the point at hand. The data collected shows that low lecture attendance and high self-study has a higher mean average than that of group 2, a group with high lecture attendance. What this source fails to consider is that the low end of group 2 may attend a lot of lectures but not pay attention or do extracurricular work. There is however a positive correlation in their group 2 data between lower attendance and low grades to that of higher attendance and high grades.



< Graph taken from paper displaying results.

Figure 1: Three distinct groups of students

After speaking with a small group of local employers about what they look for when taking on university students, it becomes apparent that there is a small check list of things to consider.

Placement

A major thing that they look for is a placement year. Not only does it give you work experience, it also begins to create a network of contacts regarding people within the trade. Making a good impression means that your colleagues and bosses are more likely to be interested in you returning to the job at hand.

A year in industry is also highly advantageous in that it gives you an insight into the world that you're about to enter as well as show you what employers really value when looking to hire a developer.

It's also said that a placement year can lead to a higher income than that of students without one. This is supported by the national centre for universal business (-) when they state, "It is estimated that the average salary of students who have completed sandwich placements is 8% higher than those that did not". Not only does this make a placement year a benefit for employment but there is the bonus of an increase in salary.

Employers are also fond of seeing placement years as it shows that you are likely to have tailored skills to the industry as well as developed 'soft' skills.

Experience

Employers also said that they prefer to see students with a wide range of coding languages beneath their belt. Although software specialists are still highly sought after, the coding world is changing, and employers like to have a team built of people that know a multitude of languages. This is not only for coding agility, employers like to have staff who aren't afraid to pick something up that is new and unseen before. This is supported by Isabel Nyo (2019) who stated "it is more important than ever that we have more people on deck who are not afraid to roll their sleeves up and pick up any new or unfamiliar technology". The account made by the software development manager is based on her own research into the trends of employment.

Media

Organisations investigate the portfolios and profiles of software developers. A profile, LinkedIn is the perfect place for a software developer to build an image for themselves. It is a platform where you can post your portfolio link, follow jobs, apply for jobs, and keep updated with goings on within the field. This is the place where employers will go to gain a more personal and targeted impression of you as an applicant.

With respect to a portfolio, it is a great advantage to have going in to the working world; you can build one on GitHub then create a group of repositories for all of the code you have created. Employers have stated that even if the code doesn't work perfectly, they are pleased to see that an attempt has been made. It shows a determination and will to attempt something new or difficult.

Putting in extra work to your degree, and towards your future job prospect is vital. Not only does it display tenaciousness, it shows them that you are willing to go above expectations to do well. Always push your own boundaries to amaze and astound not only future employers but yourself.

SFIA Framework

At university, the SFIA7 framework (sfia-online.org, 2019) is a useful source to refer to when looking at honing in skills to do with whatever subject area you go into; this instance is software development. Referring to level 4 of the software development section, it states a variety of skills specific to the trade. Of the SFIA7 framework level 4 of the framework is where you should be scaling at the end of your degree.

Being able to design code and prepare pseudo code is an essential asset to have when becoming a software developer. When speaking to a lecturer about designing code, they have expressed 'if you can't see it, you can't code it' which is a valid statement with regard to planning.

The ability to code is an obvious statement however, coding efficiently is a skill. Once you can code in one language the logic is the same it's just the syntax that changes. If you can learn a variety of syntaxes, you are more employable.

Having the skill to verify code is an abstract but essential one. Verification of code is a form of testing before coding even takes place; the planning for errors and inclusion of exception handling.

Testing code should be thorough. Testing limits, outliers, and inliers should occur on your testing sheet. This could be recorded on a text/word document including screen shots for your report as evidence of efficient testing.

Documentation of all your work should be kept and backed up. The capability to document your work well comes with experience and time. You can find frameworks online and from peers for structuring reports and testing documents in such a way that is easy to read.

Being able to amend tested work to fix any bugs or holes in your code is essential to ensure efficiency and strength of your code.

Refactoring code is considered a talent for more qualified coders, typically year 2 of your degree and higher. It is the capability to look at a piece of code, make it shorter and more efficient. It is a way of standardising code so that the readability is improved as well as runtime.

Your scripts and programs should be considerably more complex than that of work you have done before university in your earlier years. For example, code should include classes the inherit correctly and methods that feed into each other/allow for inputs to be fed in.

The confidence and capability to have your work reviewed by both peers and colleagues is necessary to be able to improve work. You must be able to take constructive criticism well, reflect on it, then implement the relating changes. As well as taking criticism you must also be able to give constructive criticism.

As a level 4 software developer you must also be able to choose appropriately between a predictive or an adaptive coding style. Predictive is a planned coding style where you stick to a point to point plan and avoid expansion. Where as an adaptive coding style is where you have a plan that acts more like guidelines than rigid points to stick to, you can be more agile, meaning code can be more intricate and more functional than the original plan.

Skills

Now coming away from the SFIA framework, there are SOFT skills that you must acquire to be proficient in software development. SOFT skills either come naturally to a person or must be worked on, but there is no avoiding the fact that they are required in order to perform well in the working world.

Being able to work in a team means more than just being in a group and suggesting ideas then completing a task. Team work is the ability to suggest, accept, and compromise on ideas as well as carry out the task successfully without conflicts of interest forming a disconnection within the group.

Interpersonal skills are something that can only be improved with practise, by going out and speaking to people. Well refined interpersonal skills are largely sought after in the working world because it displays the ability to read peoples responses and reply in an appropriate manner.

Negotiation is a key SOFT skill to have in order to progress in life and the working world. It is important to negotiate in team workings, conferences and potentially with customers and competition. You can practise negotiating in team building exercises with your peers throughout your degree.

Two SOFT skills that go hand in hand are resilience and dealing with conflict. Resilience is a necessary skill when in software development due to criticisms and disagreements. Code is a personal thing, to have someone read it and critique you is sometimes hard to hear but must be done. When it comes to dealing with conflict, it is important to remain calm and not further ignite the issue; be resilient. Come to a conclusion that satisfies all parties.

Further Development Once Employed

Once you are employed, it doesn't mean you can just stop the extracurricular work and become complacent. Continue to learn something new in the field, expand your knowledge in what you already have learned, and keep up to date on new happenings in software development. The things employers are looking for is ever changing, stay up to date with goings on as well as studying trends; that way you can pre-prepare for the future market.

Although you may already be employed, there is no harm in making yourself more employable.

Job Market At Graduation

By the time of graduation, software developers will be more greatly sought after due to the high demand for new technology and constant want to further human invention, it has been this way ever since there was a title for software developers.

This is supported when Henrik Warne(2014) states "demand is still outpacing supply. ". Although this source is dated, it displays that there has been a lack of equilibrium within the supply and demand of software developers for quite some time.

Warne's statement is further reinforced by a survey in the U.S that states (U.S GOV, 2019) "Employment of software developers is projected to grow 21 percent from 2018 to 2028.". This is proven to be extremely high by the fact that the average growth percent of all occupations together is 5. With this survey source being from the U.S its growth rate may be dissimilar from that of the UKs, none the less the principle is still valid.

Salary

According to the Plymouth .GOV (-) website the average ranging salary from beginner to experienced is £20,000 to £70,000 respectively; however, on a larger scale than the local area, this final number is much higher. This is shown on the indeed salary page(2019) that states that the real top end figure is actually approximately £92,000. Judging by the high salary, it can be concluded that the call for specialists is quite elevated.

At point of graduation, in the local area, most starter salaries will be on the lower end of the scale. This job found on the find a job. GOV website for a local Plymouth company requires valid qualifications i.e. a degree, with a starting salary between £25,000 and £40,000 a year, meaning that high paying jobs and jobs seeking software developers fresh out of university are available.

Conclusion

In conclusion, within software development every day is a new day to learn and improve. Although graduation may seem a long way away, planning and preparation for it now is the key to smooth future.

Software development should be chosen over any other career path because it is ever changing there will always be exciting career prospects.

Ensure to always stay up to date on developments within the industry and always further your knowledge in conjunction with said progression.

Seize every opportunity available to expand on SOFT skills as well as technical skills and to gain work experience.

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