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**Question 4: Reflective Report**

Throughout the ISYS2001 course, the numerous activities that I was engaged in has helped me to developed my understanding of the fundamental concepts of the python programming language. The most important activity that mostly had an impact on me was Week 6's concentration on Python debugging. This week spent learning the Python debugger provided invaluable insights into mistake detection and resolution, both of which are critical components of effective programming.

The introduction to pdb and hands-on experience with debugging workflows helped me understand error handling in Python. Setting breakpoints, checking variables, and stepping through code execution gave me practical experience that theoretical knowledge alone could not deliver. Initially, debugging seemed difficult, but as I navigated through pdb commands, I grew to appreciate the systematic approach to detecting and resolving problems.

I can say that my problem-solving abilities was greatly improved through debugging activities mostly. Finding and resolving cryptic bugs needed great attention to detail and logical reasoning. The process of isolating and systematically fixing difficulties highlighted the need of taking a logical approach to coding challenges.

Before Week 6, encountering a "syntax error" or other types of faults frequently resulted in annoyance and doubt. Learning about various mistake kinds (e.g., zero division error, file not found error, value error) and how to deal with them boosted my confidence in approaching coding issues.

The thrill of successfully debugging code and applying these skills to real-world challenges increased my confidence in my programming talents.

Working through debugging activities with colleagues enabled collaborative learning. Discussing various approaches to bug resolution and exchanging insights broadened my learning and demonstrated the need of teamwork in programming.

Peer feedback helped me overcome my initial frustrations and gain a better knowledge of debugging approaches.

**Appendix:**

week 1 :

During week 1 , I found myself for the first time enrolled for a programming class and of course i was feeling kind of nervous. I found myself at ease after getting introduced to the unit and seeing that there is nothing to be afraid of as we were covering basic topics such as hardware and software , basically the computer. I am also proud to say that I have gotten to acquire new knowledge and facts such as 90% of student have never taken a programming course before and also that computers have a specific problems that most of us never knew about, which is computer doesn’t multi task but does one specific task at a very fast pace at a time. Last but not least , we were introduce to programming and some new terms such as Pseudocode, Functions, Selection, Boolean Expressions,Loops. As a newbie, I learned how important it was to fully understand these fundamental ideas. The interconnection of hardware and software, the precision of pseudocode, and the logic behind functions, selection, boolean expressions, and loops are all essential components of the programming language. Understanding these fundamentals will be critical as I traverse the coding world in the next weeks.

week 2 :

Progressing into week 2 classes, the complexities of coding started to become more apparent as we started diving into more details into the topics such as breaking down problems into simple actions. We had to start breaking problems into simpler terms in order to have a better understanding . These consisted of steps such as describing the inputs and the outputs and then a method that helped me more is the practicing by hand method for example write it and try to solve the problem by hand before doing it on the computer. We have also been introduced to data types such as integers, string, Boolean, decimal and list.

Week 2 has allowed me to experience the basics of coding but more in depth , showcasing the complexities of problem solving, algorithm building, and the art of transforming ideas into practical code. With a better understanding of these fundamental ideas, I'm excited to use what I've learned so far and continue to unravel the complicated tapestry of python programming in the coming weeks.

week : 3

Week 3 of python classes has covered some interesting modules such as functions, using modules, and defining functions. I was able to engage in hands on activities to get a better grasp of the mechanics of calling functions by name providing arguments, and storing return values.Moreover, going through this module has enabled me to distinguish between built-in and third-party modules and their respective functionalities.

Initially going through the various aspects of function calling and module utilization felt daunting , yet as I progressed through exercises and examples, a sense of clarity and empowerment emerged. Understanding the modular nature of Python programming instilled confidence in tackling complex tasks, while defining functions provided a structured approach to code organization. Despite occasional hurdles, the satisfaction of successfully implementing these notions spurred my desire to learn more about Python's potential and improve my programming skills.

week 4 :

For week 4, as I was navigating through my notebook exercises, I was met with an expected message which displayed “syntax error” in red. I was feeling frustrated as I could not figure out where the error was as I was scrolling up and down and checking every lines of codes all over again. Later on during the lecture, I was relieved to see this popping up in one of the topics we were covering which was error handling. At this point it was easier to understand what was going on and where the error came from. I have also learnt that there were other types of errors as well such as zero division error, file not found error, value error al during out practice exercise and lectures.

How I felt at first was the feeling of being lost and not able to do anything before learning about how to handle errors in python but now I feel more confident and looking forward to tackling more challenges especially real life problems, of course with the help of my instructors as I am not quite a pro yet. I embraced the learning process, confident in my ability to navigate Python's landscape with increasing proficiency. This week's lessons have not only expanded my technical skill set but also instilled a deeper appreciation for the problem-solving potential of Python programming.

week 5 :

This week has enabled me to learn about Python’s modular architecture and packages which was an enlightening journey as I got to discover new things such as uncovering the power and versatility module offer in code organisation and reuse. What I found more interesting was the built in and also third party modules. These proved to be functionalities that could be seamlessly integrated into my projects. Navigating through the intricacies of module importation and package structuring, I discovered the elegance and efficiency they bring to software development. Each module and package encountered, whether from the standard library or third-party repositories, provided insight into Python's vast ecosystem, which is bursting with solutions for a wide range of topics and businesses.

Engaging with modules and packages at first made me go through a spectrum of emotions, as at first as I was finding it to be a little complex but as we were progressing, I started to grasp underlying organizational structure and the benefits they offer in terms of code maintainability and scalability. Understanding how to import modules and structure packages efficiently felt like unlocking a treasure trove of tools, each ready to be harnessed for solving diverse programming challenges.

week 6 :

This week I was set on a path to discover the topic called debugging with python also known as (pdb) which is essentially techniques for identifying and resolving errors in Python code. Transitioning into the realm of PDB, I discovered new methods, from setting breakpoints and inspecting variables to stepping through codes execution. Navigating through the intricacies of PDB commands and debugging workflows, I discovered the efficiency and effectiveness it brings to the debugging process. I can say that engaging with Python debugging has made me feel frustrated at first especially encountering elusive bugs but I could also add that I felt a sense of satisfaction after successfully isolating and resolving the issues. Working through the problems solving exercises along with my peers has also helped a lot.