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FROM CAMPUS TO CORPORATE: UNDERSTANDING THE TECHNICAL INTERVIEW STRUGGLES OF FINAL YEAR COMPUTER SCIENCE STUDENTS

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Abstract:

One of the main skills that students gain when they graduate from computer science programs is Computer programming and every student have dream to join IT sector However, but it is found that students often have significant difficulties with their programming skills and find difficulties to crack the technical round. The effect of this results in very poor joining rate in IT sectors for fresher's particularly science graduate from computer science colleges.

This paper provides an understanding of difficulties faced by university students of particular senior college science graduate students what problems they are facing during the technical round .This study is based on a survey. The questionnaire used in the study has 12 items that summarizes the primary reasons for student's difficulties in this area. The study is based on five senior science colleges having computer science as major subject in their curriculum at Pune city .

Keywords—*Programming skills, Students difficulties, Pair programming.*

Introduction:

Career opportunities and day-to-day computer-related activities have motivated students to pursue computing careers, such as computer science, computer engineering, information science, and software engineering. [1]. In 2018, 71% of STEM (science, technology, engineering, and mathematics) jobs utilized computing, as per statistics from the U.S. Bureau of Labor Statistics [2]. The role of computing in the solution of contemporary needs and the STEM agenda has resulted in higher interest in the programming curriculum.[2]As initiatives such as the National Education Policy (NEP) 2020 and the India STEM Foundation brought the spotlight on it, STEM education is critical for India's future, fostering innovation and preparing students for a globalized workforce. TeamLease Digital's 'Digital Employment Outlook Report for H1-2023' estimates that by the end of fiscal year 2023, India's Information Technology and Business Process Management (IT-BPM) industry will have increased from 5.1 million to 5.45 million employees, creating around 300,000 new jobs. (https://timesofindia.indiatimes.com/)The initial programming language that students must learn is addressed in the Journal of Education & Social Sciences (Sheikh & Islam, 2016)[3]. Other possibilities exist, such as C/C++, C#, Java, and Python. Despite programming courses being challenging, there are few studies on the actual challenges that students experience in the classroom. Precisely, what concepts are hardest for students to grasp, and what methods ease learning of programming for them? To fill this gap, this paper considers key programming issues. In summary, the increasing need for computer-related occupations in different industries, particularly in fields of science, technology, engineering, and mathematics (STEM), is indicative of the rising significance of computing education. With the National Education

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Policy (NEP) 2020 and the India STEM Foundation bringing focus on how the future human resource of India will be driven by STEM, it's apparent that programming skills are becoming necessary. With the IT-BPM industry growing in India, the demand for a skilled programmer well-versed in programming languages like C++, Java, and Python also keeps growing. In spite of increased interest and available opportunities, the process of teaching programming concepts has become a mammoth task for students. Learning the difficulties it poses and identifying the methods with which learning could be best assisted can help extensively in enhancing computer science education standards. By dealing with these challenges, we can prepare students more effectively for the changing needs of the job market and make sure they are ready with the skills needed to thrive in a rapidly digital world.

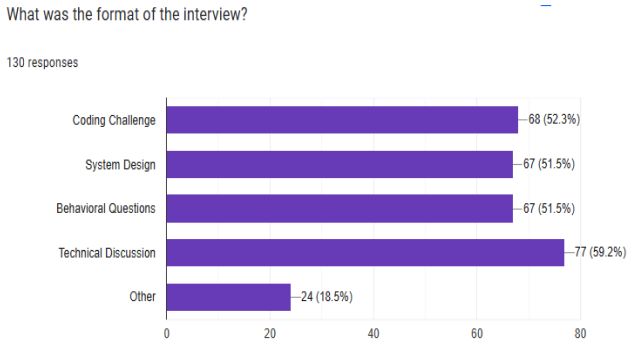
Methodology:

In this research survey method is used with a questions of 15 questions in 3 different sections. The respondents are current last year computer science students from different senior colleges from science program. Total 130 students from 5 colleges were responded to the above questionnaire. The targeted students were those who were seeking the job in IT sector and facing the difficulties to crack the interviews. The questionnaire were created and circulated through google forms so that the students can fill it as per their convenience

After analysing the questionnaire following results were interpreted.

The majority of respondents (70.8%) have conducted one or two interviews, according to the above figure, suggesting that many people are either unfamiliar with the interview process or have had few opportunities. A sizable percentage of 26.9% have conducted two to five interviews, indicating that they have a moderate level of interviewing experience. Over 5 times that is just 2.3% of students have conducted over 5 interviews, suggesting that relatively few possess substantial interviewing experience. From above figure it concludes that majority of responders are just starting their career or job search. If increasing confidence and success rates is the aim, this can suggest that additional training or practice interview opportunities are required.

The second question was about format of the interview



The above bar chart responds 59.2% of technical discussion resonse which most frequently occurred type, which tells us importance is given on wide knowledge and problem-solving skills during interviews. Many participants responded coding challenges option.51.5% System design questions were responded, which indicated that there is also requirement of architecture and scalability concepts. A lesser number went through other types, potentially including HR rounds, case studies, or group discussions.

From the above responses it is indicted that most of the interviews are multi-faceted, having technical, design, and behavioural evaluations. The emphasis on the technical interview and coding problems implies that

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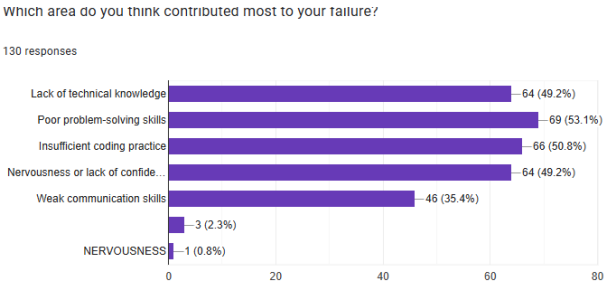
candidates must focus on preparing for these. The balance between system design and behavioural questions implies well-rounded preparation that is both technical and social.

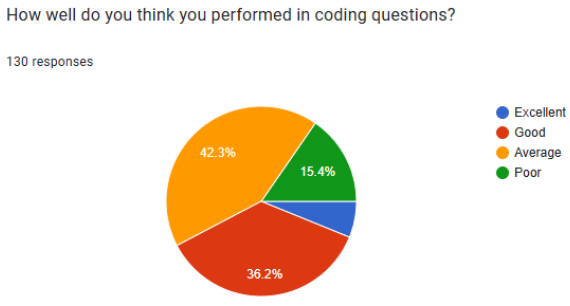
Preparation is one of the important process so the researcher asked a question based on how much time was given for the interview preparation

By seeing the above graph 43.1% of respondents had less than a week to prepare, indicating that students were often expected to be ready at short notice. A large proportion of about 36.9% had slightly more time with 1 to 2 weeks allowed for preparation sufficient for moderate study but still insufficient for thorough study. Approximately 12.3% received no time to prepare, probably indicative of spontaneous or pressing interview invitations, potentially resulting in stress or suboptimal performance. A very small proportion received over 2 weeks of preparation time, suggesting that long preparation periods are exceptional. Most interviewees are offered short notice (within 2 weeks) for interviews. This information emphasizes the need to be prepared all the time, as opposed to studying at the last minute. Training modules or programs that promote continuous readiness would be helpful for job seekers in such settings. To identify the failure rate in students it is necessary understand in which area they are weak so a related question was asked .Following is the graph of responses



For the above graph the findings shows that 53.1% of the candidates struggle to use logic and strategy when under pressure which indicates poor problem-solving skills amongst the students. More than half of the students that is 50.8% identified poor hands-on coding experience, indicating the significance of frequent coding practice. Almost a half reported a lack of basic understanding, indicating that reinforcing basic concepts needs to be emphasized.49.2% of respondents were nervous and under confident that is a particular psychological obstacle which proved as strong as technical mistakes, emphasizing the affective aspect of interview performance. Most of them that is 35.4% had trouble articulating their thoughts concisely, and this was especially crucial in behavioural or team testing which indicated Poor communication skills.

Students were also asked about their performance in coding



The largest group referred to themselves as average (42.3%), which meant they passed minimum standards but were not certain of their solutions. Most of them thought they did well, demonstrating a good degree of coding ability and readiness.15.4% students believed that they performed badly, acknowledging strengths or

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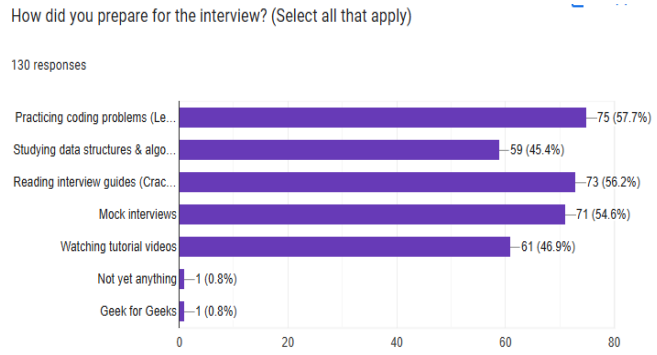
approaches where they had to improve. A very low percentage graded their performance as excellent, which shows that a very small number of candidates performed their coding tasks exceptionally well.

Next the students were asked about their interview preparation methods

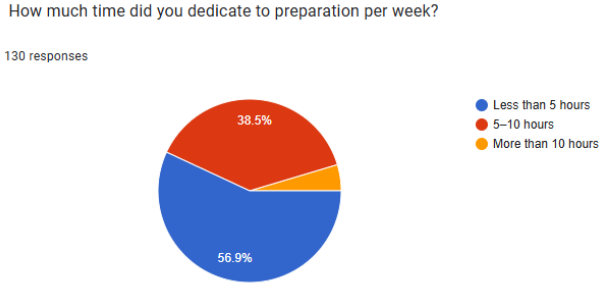


From the above graph students selected major preparation techniques like

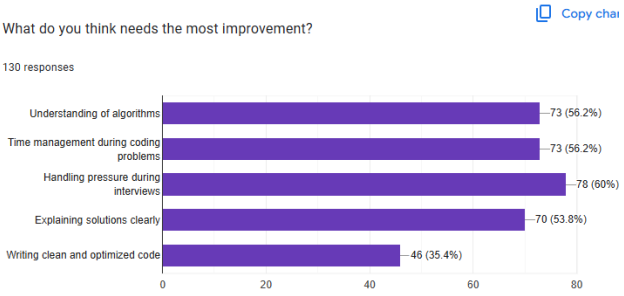
Coding problem solving which was most frequently selected by the students which is 57.7%

56.2 % of students refer official materials and do theory-based preparation for cracking the Coding Interviews. 54.6% of them performed mock interviews, reflecting awareness of the need for simulation and feedback. The most popular preparation method is watching tutorial videos which is 46.9% .As Data Structure and algorithms is most important for cracking the interviews only 45.4% were aware of this.

Student's dedication for interview preparation is also important for seeking jobs so a related question was asked for which following responses were received

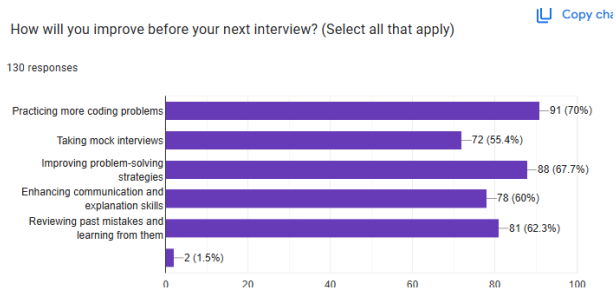


A majority of respondents (56.9%) prepared for under 5 hours per week, suggesting very inconsistent effort, possibly due to lack of seriousness or unaware of the interview process but A group prepared moderately,(38.5%)for interviews.



70% of students chose Coding practice exercises as the most preferred choice. Improving problem-solving approaches was the most emphasized by students that is 67.7%. Overall 62.3% of them will improve themselves by reviewing past mistakes and learning from them. Practice interviews proved to be a popular preparation method 55.4% of them recorded this.

Students were also asked about their improvements for further interviews



Solving programming problems (70%) ranks first, confirming the importance of technical skills in interviews.67.7% enhancing problem-solving techniques and reviewing on past mistakes reflects attention to skill building and self-evaluation was recorded. Improving communication skills (60%) and mock interviews (55.4%) are appreciated but less than technical preparation.

Conclusion:

The figures indicate an early-career job-seeker population who are now in the process of seeking different preparation methods but yet need to be

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improved in technical and soft skills. They are usually subjected to interviews that examine not only coding but system design and behavioural skills as well, which indicates the necessity of balanced, all-round preparation. Although technical skills i.e., coding practice and problem-solving—are the most stressed and most required, communication, confidence, and time management are also the most critical success determinants in an interview. Surprisingly, the majority of applicants spend less than 10 hours a week preparing, usually at the last minute, which puts constraints on how well they are prepared. In order to bridge the performance gap, training courses must place strong emphasis on sustained, experiential learning, with multiple iterations of mock interviews, timed practice, algorithmic understanding, and loops of feedback. Concurrently, confidence building, debugging expertise, and articulation of solutions will make the candidate stand out.

To gain success for cracking the technical rounds or interviews technical skill, and consistent, systematic practice is essential. From above study it is found that right guidance also plays an important role for student's success for their careers.

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