Hackathons to a Job: Finding the Correlation Between Hackathons and Future Employment in Computer Science Students

Project Objective

Our project seeks to examine hackathons hosted at the University of Central Florida (UCF) and identify the advantages gained by students majoring in computer science or information technologies who aspire to pursue careers in these fields through their participation in these events.

The research will concentrate on assessing the specific benefits participants of hackathons derive from these events, evaluating how the acquired experience impacted their future academically and professionally. Our research will focus on students who have previously participated in hackathons and have secured an internship or employment in order to ascertain the extent to which their participation in hackathons has improved their professional performance. By gathering this data, we hope to inform the university of the benefits of such events and determine what more can be done to allow students to further benefit from future hackathons.

Project Background and Significance

In recent years, there has been a surge in interest in the computer science field causing many students to enroll as computer science majors nationwide. This increased interest in the field has made it difficult for students to land jobs post-graduation and the requirements to be hired have increased "However, despite the increase in enrollment and the growing number of CS programs, the Bureau of Labor Statistics projects that by 2020 there will be 1.4 million CS-related jobs available and only 400,000 CS graduates with the skills to apply for those jobs. Consequently, undergraduate CS majors have faced some challenges" (Paek 2). Some ways students can stand out more than others is by having more experience on their resume, participation in internships, more projects completed, and industry-facing skills "The top five required skills in ascending ranked order are interpersonal communication skills, interpersonal behavior skills, personal motivation and working independently, critical thinking, and creative thinking capabilities." (Yen et al 4). As students, it can be difficult to find resources to enhance your professional skills and gain experience while also attending classes full-time.

One way students can be better equipped with these necessary attributes is by participating in hackathons. Hackathons are gatherings that allow students to work on projects in a competitive environment that prompts the participants to solve complex problems while also employing professional skills that will help them in their professional careers. According to Nandi and Mandernach, some crucial skills that can developed during a hackathon are interpersonal skills, personal motivation, independent working, critical thinking, and creative thinking. These skills can also be applied in a professional environment or other hackathons "Problem-solving is a crucial skill in a hackathon, as it can bring forth the development of practical and creative solutions. Problem-solving entails the process of identifying a problem, developing possible solution paths, and taking the appropriate course of action"(Yuen and Wong 4).

Hackathons allow students to network with employers and researchers, which can aid them in landing an internship or a post-graduate job "Even companies may sponsor external hackathons. It can be a great way to promote employment opportunities and recruit new talent" (DeFranco et al. 2). Hackathons also encourage students to learn more about the field and to learn new technologies "For many participants of hackathons, the primary motivation isn't getting the work done or the adulation of their peers—it's the opportunity to learn. People often select projects in areas outside of their expertise" (DeFranco et al. 3).

Our study would be important for the industry because it may create a link between hackathons and job opportunities that will encourage students and Universities to engage more in hackathons.

Research Methods

There will be three steps necessary to conduct our research. A survey will first be made using carefully selected questions. The survey will be disbursed to hackathon participants at various periods after completion of the event through Qualtrics. Then, data will be processed and analyzed. Finally, data will be analyzed for results.

Step 1: Constructing the Survey
The goal of the survey is to measure hackathon experience, academic success, and career success. As such, the questions of the survey should aim to measure factors or indicators of these key components. The level of hackathon experience a participant has can be measured by surveying the number of hackathons the participant has been to and how much they left they have learned during those event. Questions measuring academic success could include their GPA or course grades. Finally, career success questions may include their internship or employment status. This survey will be given to competitors right after the hackathon and every year after the hackathon to monitor their career progress. This will continue even after the participant has graduated and entered the workforce or graduate education. The surveys will also be given to non-hackathon competitors in the CS and IT fields as control. The contact information of participants will be retained for a survey after graduation. In total, 50 CS and IT students will be surveyed for this project. Follow-up interviews can also be conducted to gather more qualitative data.

Step 2: Processing the Data
The data will first be separated by those who participated in many hackathons and those who participated in few or no hackathons. The data will also be weighed by GPA since this is a likely confounding factor along with hackathon participation that could influence future employment. Students with low GPAs who fail classes, or students with exceptionally high GPAs who are consistently high-achievers, are obvious outliers. Hackathon participation may have a more noticeable correlation with employment with more statistically normal values.

Step 3: Graphing and Reporting

As responses come in over the years of surveying, data will be graphed visually to show how factors like hackathon participation and self-reported benefit correlate to factors like

participation in employment or academic research. The visual trends revealed by these graphs, along with other statistical values that show correlation like the coefficient of determination, can be easily shared and reported.

Expected Outcome

The ultimate aim of our project is to determine the significance of participation in hackathons on the careers of participants. We aim to pinpoint the specific aspects of hackathons that are most beneficial for the development of participants both academically and professionally. All insights and data collected will be consolidated to form a scholarly article to communicate all our findings, benefiting others interested in the same topic or similar ones. Regardless of whether we discover that hackathons have a major or minimal impact on student academic and professional success, we are committed to presenting our findings in the form of an article. This will enable others to examine the data we have gathered, draw their own conclusions, and perhaps build upon our research.

We also aim to present our findings to CS and IT majors at UCF through easily understandable pamphlets and an email newsletter. By doing so, we hope to raise awareness among students about the many benefits associated with participating in hackathons, thereby motivating more students to participate. Furthermore, we intend to share our findings with Knight Hacks, the team responsible for organizing hackathon events at UCF. We hope that our research can serve as valuable insight for Knight Hacks to enhance and refine future events that they host.

Additionally, we aspire for our findings to shed light on the numerous benefits that come with hosting hackathons, to motivate UCF to consider augmenting the budget allocated for hackathons and similar events. Even if no changes are implemented in how hackathons are held at UCF, the insights gained from our research will still be valuable for informing CS and IT students currently attending UCF. This information will offer them valuable insights into the personal benefits associated with attending hackathons, potentially motivating them to participate in these events at UCF. We hope that the data will be well-received and utilized to enhance hackathons not only at UCF but also at other institutions worldwide.

Literature Review

Attalah, I., Nylund, P. A., & Brem, A. (2023). Who captures value from hackathons? innovation contests with Collective Intelligence Tools Bridging Creativity and Coupled Open Innovation. *Creativity and Innovation Management*, *32*(2), 266–280. https://doi.org/10.1111/caim.12552

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Preliminary Work and Experience

All members of the team have taken a variety of writing and research classes, including ENC1101, ENC1102, and ENC3241. This provides the team with the experience to conduct the research proposed in this document and communicate the findings to a wide variety of audiences. Additionally, members of the team have all participated in at least one hackathon, providing insight on how to identify important variables of the competition. This will allow us to construct more effective surveys that will better capture the effects of hackathons.

Team members have experience making and distributing surveys using other platforms, such as Google Forms. This should be easily transferable to the platform of choice for this study's survey, which is Qualtrics. The team members have experience creating graphs and conducting statistical analysis because of classes like STA2023 and classes with laboratory sections. These classes are requirements for the Computer Science major, which all of the team members are. These classes have also provided experience with programs like Excel and Google Sheets. This enables the team to analyze the data gathered through the survey, identify patterns, and show this information in visual methods.

IRB/IACUC Statement

The project will require IRB approval because of the use of surveys and interviews with human participants. All questions included in distributed surveys and interviews will be included in the approval process. No animals are involved in this project, so IACUC approval is not required.

Budget

The survey will be given to 50 computer science and IT students who have or have not participated in a hackathon. Since the research requires participants to continuously respond to surveys over the period of several years, incentives should be offered to encourage continued participation in the survey. Participants will receive a $5 gift card to a popular online store of their choice upon completion of each survey. The survey will be given at most 4 times over the course of 4 years. In total, the maximum budget will be $1000.