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| **Behavioural Application** | **For Internal Use Only** |
| **UnivRS Internal ID:**  **Date Received:** Click here to enter a date. |

**Part 1: Key Information**

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| Title\*: Exploring the Influence of Method Dependencies on Code Understanding  Level of Risk: \* Minimal risk  Expected Start Date: \* 2024-10-21  Expected End Date: \* 2024-10-31  If applicable, explain why this application is time sensitive: The aggregated outcome of this survey will be presented in the form of a research paper. The paper submission deadline is November 09, 2024. |

**Project Personnel**

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| **Principal Investigator**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Name:** | **NSID:** | **Email:** | **Phone:** | **Organization (Department):** | | Dr. Banani Roy | **bar156** | banani.roy@usask.ca | 306-966-2475 | Computer Science |   **Sub-Investigator(s)**  **Student(s)**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Name:** | **NSID:** | **Email:** | **Phone:** | **Organization (Department):** | | Md Mustakim Billah | mjr175 | mustakim.billah@usask.ca | 306-227-5282 | Computer Science |   **Primary Contact**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Name:** | **NSID:** | **Email:** | **Phone:** | **Organization (Department):** | | Md Mustakim Billah | mjr175 | mustakim.billah@usask.ca | 306-227-5282 | Computer Science |   **Secondary Contact** |

**Sponsor(s)**

|  |  |  |  |  |
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| |  |  | | --- | --- | | **Sponsor:** | **Pending / Awarded** | |  |  | |

**Agency(ies)**

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| |  |  | | --- | --- | | This project is funded: \* | ☒ Yes ☐ No | | The funding supporting this project will be administrated at the University of Saskatchewan: | ☒ Yes, complete Part A  ☐ No, complete Part B |   **Part A: For Grants and Contracts administered by the U of S:**  Project Application(s) Directly Associated with the Fund(s) Supporting this Project  Specify the UnivRS internal ID# (for pending grants or contracts): **103218**  Project(s) Directly Associated with the Fund(s) Supporting this Project  Specify the UnivRS internal ID# (for awarded grants or contracts): **354461**  **Part B: For Grants or Contracts not administered by the U of S:**   |  |  | | --- | --- | | **Agency:** | **Pending / Awarded** | |  |  | |

**Location(s) Where Research Activities Are Conducted**

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| Enter every location where this research will be conducted under this Research Ethics Approval: \* **Canada. Online Survey, so participants do not need to be present physically in a specific location.**  Country(ies):\* List all countries where you will be conducting your research under this Research Ethics Approval: **Canada**  If this project will be conducted within schools, health regions, or other organizations, specify how you will obtain permission to access the site. Submit a copy of the certificate or letter of approval when obtained.  If you do not plan to seek approval, provide a justification: Not applicable |

**Other Ethics Approval**

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| |  |  | | --- | --- | | This project has applied for/received approval from another Research Ethics Board(s) \* | ☐ Yes ☒ No |   If 'yes', identify the other Research Ethics Board(s): |

**Conflict of Interest**

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| Confirm whether any member of the research team or their immediate family members will:   |  |  | | --- | --- | | Receive personal benefits over and above the direct costs of conducting the project, such as remuneration or employment: \* | ☐ Yes ☒ No | | Receive significant payments from the Sponsor such as compensation in the form of equipment, supplies or retainers for ongoing consultation and honoraria: \* | ☐ Yes ☒ No | | Have a non-financial relationship with the Sponsor such as unpaid consultant, board membership, advisor or other non-financial interest: \* | ☐ Yes ☒ No | | Have any direct involvement with the Sponsor such as stock ownership, stock options or board membership: \* | ☐ Yes ☒ No | | Hold patents, trademarks, copyrights, licensing agreements or intellectual property rights linked in any way to this project or the Sponsor: \* | ☐ Yes ☒ No | | Have any other relationship, financial or non-financial, that if not disclosed, could be construed as a conflict of interest: \* | ☐ Yes ☒ No |   If yes was answered to any question(s), explain the personal benefit(s) and how the conflict will be managed: |

**Part 2: Project Overview**

**Project Overview**

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| Summarize this project, its objectives and potential significance: \*  **This study aims to explore the effect of method dependencies in source code while generating code comments. By knowing the information, the final goal is to propose better ways of code comment generation by considering method dependencies for better code understanding.**  Provide a description of the research design and methods to be used: \* **The survey will be conducted online via SurveyMonkey tool, distributed via email, and shared on social media (LinkedIn and Facebook). Sub-Investigator's personal social media accounts will be used in this purpose. We also confirm that if anyone responds to a social media advertisement using a messaging service native to the social media platform (e.g., Twitter DMs, Facebook Messenger), we will move the conversation to email and delete the conversation in the social media platform. The results will be presented in an aggregated form in future research papers and theses.** |

**Duration and Location of Data Collection Events**

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| Outline the duration and location of data collection for the following, if applicable:  Audio/Video Recording(s):  Ethnography:  Focus Group(s):  Group Interview(s):  Home Visit(s):  Individual Interview(s):  Non-Invasive Physical Measurement(s):  Participant Observation:  Questionnaire(s): Ask using survey monkey. 10-15 mins maximum.  Secondary Use of Data or Analysis of Existing Data:  Other: |

**Internet-Based Interaction**

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| |  |  | | --- | --- | | Confirm whether this project will involve internet-based interactions with participants, including e-mails: \* | ☒ Yes ☐ No |   If a third party research or transaction log tool, screen capturing or website survey software or masked survey site is used, describe how the security of data gathered at those sites will be ensured: We will use USask SurveyMonkey enterprise account to collect the data.  Describe how permission to use any third party owned site(s) will be obtained:  If participants may be identified by their email address, IP address or other identifying information, explain how this information will remain private and confidential: Participants won’t be identified, as the survey will be anonymous. |

**Anonymity and Confidentiality**

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| |  |  | | --- | --- | | Confirm whether participants will be anonymous in the data gathering phase of the project: \* | ☒ Yes ☐ No |   If 'No' was answered to the previous question, explain how the confidentiality of participants and their data will be protected, and include whether the research procedures or collected information may reasonably be expected to identify an individual:  Identify any factors that may limit the researchers’ ability to guarantee confidentiality:   |  |  | | --- | --- | | Limits due to the nature of group activities, such as a focus group where the project team cannot guarantee confidentiality: | ☐ Yes ☐ No | | Limits due to context: individual participants could be identified because of the nature or size of the sample: | ☐ Yes ☐ No | | Limits due to context: individual participants could be identified because of their relationship with the project team: | ☐ Yes ☐ No | | Limits due to selection: procedures for recruiting or selecting participants may compromise the confidentiality of participants, such as those referred to the project by a person outside the project team: | ☐ Yes ☐ No |   Other confidentiality limits: |

**Risks and Benefits**

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| Explain the psychological, emotional, physical, social or legal harms that participants may experience during or after their participation: There are no known or anticipated risks.  Describe how the above risks will be managed. If appropriate, identify any resources to which they can be referred:  Describe the likely benefits of the research that may justify the above risk(s): There is no personal benefit for the participants. However, the survey findings may positively impact the software research community in developing better-automated techniques for Code Understanding. |

**Part 3: Community Engagement**

**Aboriginal Peoples and Community Engagement**

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| |  |  | | --- | --- | | Aboriginal communities, peoples, language, culture or history is the primary focus of this project: \* | ☐ Yes ☒ No | | Aboriginal people will comprise a sizable proportion of the larger community that is the subject of research even if no Aboriginal-specific conclusions will be made: \* | ☐ Yes ☒ No  ☐ Not Applicable | | There is an intention to draw Aboriginal-specific conclusions from this project: \* | ☐ Yes ☒ No | | This project will involve community-based participatory research: \* | ☐ Yes ☒ No | | There will be a research agreement between the researcher and community: | ☐ Yes ☒ No | |

**Aboriginal Engagement and Community-Based Participatory Research**

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| If 'yes' was answered to any of the above questions, complete the following:  Outline the process to be followed for consulting with the appropriate community:  Describe the organizational structure and community processes required to obtain approval within the specific community(ies):  Describe any customs and codes of research practice that apply to the particular community(ies) affected by the project:  Describe how the research plan will consider mutual benefit to the participating community(ies), support capacity building through enhancement of the skills of community personnel and the recognition of the role of elders and other knowledge holders:  Describe how the community representatives will have the opportunity to participate in the interpretation of the data and the review of research findings before the completion of any reports or publications:  Describe how the final project results will be shared with the participating community(ies): |

**Part 4: Recruitment and Consent**

**Participant Recruitment**

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| Indicate the expected number of participants and provide a brief rationale for the number: \* **expected more than 50 participants.**  Describe the criteria for including participants: \* **Anyone who has professional software development experience.**  Describe the criteria for excluding participants: \* **Domains other than computer science. Also, incomplete surveys will be excluded.**  Provide a detailed description of the method of recruitment, such as how and whom will identify and contact prospective participants: \* **We will randomly select developers from GitHub and apply a snowball sampling approach. This means we will ask the selected developers to forward the survey to other developers they believe are suitable participants. Developers' email addresses are publicly available in GitHub repositories. We will mine 10 public GitHub repositories and send the survey link via email to the developers associated with these repositories.**  If the project involves vulnerable, distinct, or cultural groups, or if the project is above minimal risk, describe the research team's experience or training in working with the population:  Explain any relationship between the researchers and the participants, including any safeguards to prevent possible undue influence, coercion or inducement: \* **Researchers and the potential participants are unknown to each other.**  Provide the details of any compensation or reimbursements offered to the participants: **Survey participance is completely voluntary.** |

**Consent Process**

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| Describe the consent process:  Specify who will explain the consent form and consent participants: \* **The consent is explained at the very first page of this survey and participant can consent to this survey by choosing one of the options like 1) I consent to participate 2) I do not consent to participate. Based on the choice the survey will go forward or end.**  Explain where and under what circumstances consent will be obtained from participants: \* **Once participants submit their answers, they cannot change or withdraw the answers.**  Describe any situation where the renewal of consent might be appropriate and how it may be  obtained: \* **N/A**  If deception of any kind will be used, justify its use, describe the protocol for debriefing and re-consenting participants upon completion: \* **Not applicable**  If any of the participants are not competent to consent, describe the process by which their capacity or competency will be assessed, identify who will consent on his/her behalf (including any permission or information letter to be provided to the person or persons providing alternate consent), as well as the assent process for participants: **N/A**  Describe how and when participants will be informed about their right to withdraw, including the procedures to be followed for participants who wish to withdraw at any point during the project: \* Before submitting the survey, participants can withdraw anytime by just closing the online survey link. Once, they submit the survey form, they will not be able to withdraw their responses as the survey nature is anonymous. |

**Part 5: Security and Storage**

**Data Security and Storage**

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| Identify the research personnel responsible for data collection: \* **Md Mustakim Billah, MSc student, Computer Science, USask**  Specify who will have access to raw data, which may include information that would identify participants: \* **Md Mustakim Billah, MSc student, Computer Science, USask.**  **Dr. Banani Roy, Assistant Professor,** **Computer Science, USask.**  Describe the data storage plans, including the arrangements for preventing the loss of data: \* **USask OneDrive account of the principal investigator.**   |  |  | | --- | --- | | Confirm whether the Principal Investigator will be responsible for data storage: \* | ☒ Yes ☐ No |   If no, specify the reasons and indicate who will be responsible for data storage:  Specify how long data will be retained: \* 5 years minimum as per University of Saskatchewan Guidelines  If other, specify duration and provide justification:  Explain how the collected data is intended to be published, presented, or reported: \* **Aggregated information from the questionaries will be shared and reported while publishing a research paper and thesis.**  Describe the final disposition of research materials: \* **Destroy the data**   |  |  | | --- | --- | | State whether data will be transferred to a third party: \* | ☐ Yes ☒ No |   Organization(s) where data will be transferred:  Indicate how data will be transferred to the third party: Choose an item.  If other, please specify: |

**Part 6: Declaration of Principal Investigator**

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| By submitting this application form, the Principal Investigator (PI) attests to the following:   * the information provided in this application is complete and correct. * the PI accepts responsibility for the ethical conduct of this project and for the protection of the rights and welfare of the human participants who are directly or indirectly involved in this project. * the PI will comply with all policies and guidelines of the University and affiliated institutions where this project will be conducted, as well as with all applicable federal and provincial laws regarding the protection of human participants in research. * the PI will ensure that project personnel are qualified, appropriately trained and will adhere to the provisions of the Research Ethics Board-approved application. * that adequate resources to protect participants (i.e., personnel, funding, time, equipment and space) are in place before implementing the research project, and that the research will stop if adequate resources become unavailable. * any changes to the project, including the proposed method, consent process or recruitment procedures, will be reported to the Research Ethics Board for consideration in advance of implementation. * will ensure that a status report will be submitted to the Research Ethics Board for consideration within one month of the current expiry date each year the project remains open, and upon project completion. * if personal health information is requested, the PI assures that it is the minimum necessary to meet the research objective and will not be reused or disclosed to any parties other than those described in the Research Ethics Board-approved application, except as required by law. * if a contract or grant related to this project is being reviewed by the University or Health Region, the PI understands a copy of the application, may be forwarded to the person responsible for the review of the contract or grant. * if the project involves Health Authority resources or facilities, a copy of the ethics application may be forwarded to the Health Authority research coordinator to facilitate operational approval. |

**Document(s)**

Please provide a list of documents that are being submitted along with this application: e.g. Consent forms, questionnaires, interview questions, data collection sheets, recruitment materials.

1. Questionnaires along with consent
2. Email / Social Media post template
3. Developers Email List (with GitHub project names)
4. tcps2\_core\_certificate