Introduction

Using interactive graphs for program comprehension
Recruitment Screener

Thank you for your interest in our research study assessing strategies to use interactive graphs for program comprehension. We are looking for participants who have an understanding of object-oriented programming and C++. The purpose of this screening questionnaire is to ensure that you meet the prerequisites of the study with respect to understanding of the fundamental concepts behind the information that the tool will be presenting. Only individuals who answer 5 out of 6 questions correctly will be invited to participate in the research study. It is important to note that, in the study, you will not be evaluated in any way and it is the tool that is under scrutiny, not you.

You are required to share your screen while completing the screening questionnaire. The study session will start after the researcher verifies that you pass the screening test. Your information will be deleted if you do not meet the prerequisites of the study.

Are you interested in participating

- ◯ Yes
- ◯ No

Questionnaire

The following questions will test your knowledge of Object-Oriented Programming and C++. To participate in our study, you must answer correctly at least 5 out of the 6 questions.

Which feature of OOP indicates code reusability?

- ◯ Abstraction
- ◯ Polymorphism
- ◯ Encapsulation
- ◯ Inheritance

Consider the following C++ classes and their inheritance relationships:

```
class A {...};
class B: public A {...};
class C: public A {...};
class D: public C {...};
class E: public D {...};
```

Which types of objects can be assigned to a variable of type C? Check all that apply.

- [ ] A
- [ ] B
- [ ] D
- [ ] E

Variables and functions belonging to a class are respectively called fields and methods.

- ◯ True
- ◯ False

Considering the C++ program below:

```
struct A {
    virtual void foo() { cout << "A::foo" << endl; }
};

struct B: public A {
    void foo() { cout << "B::foo" << endl; }
};

void f(A &a) {
    a.foo();
}

int main() {
    B b;
    f(b);
}
```

What is the output of the above program?

- ◯ A::foo
- ◯ B::foo
- ◯ The program does not compile
- ◯ The program crashes

Can objects of an abstract class be instantiated?

- ◯ Yes
- ◯ No

The virtual functions must be declared and defined in the _____ class and overriden in _____ class.

- ◯ base, derived

- base, base
- derived, base
- derived, derived