

Technical Debt Survey about TensorFlow

Thank you for your help by filling in this survey!

In this survey, we ask:

- 8 questions about yourself (demographics);
- 6 general questions about your experience with Technical Debt (TD);
- 4 questions about how you address TD in TensorFlow.

If you are not sure about what TD is, no worries!

We provide all necessary information before the questions.

All information used in the study will be anonymized and aggregated to hinder the identification of individuals.

*** Required**

Demographics

We would like to start by learning a little bit about you.

1. What roles do you play in your project? (mark all that apply)

Check all that apply.

- ☐ Developer (incl. Software Engineer)
- ☐ Tester (incl. Quality Assurance)
- ☐ Team Lead
- ☐ Scrum Master
- ☐ Software Architect
- ☐ Project Manager
- ☐ Product Owner

Other: ☐ _____

2. Among the roles you play, which one do you consider to be your main role? *

Mark only one oval.

- ☐ Developer (incl. Software Engineer)
- ☐ Tester (incl. Quality Assurance)
- ☐ Team Lead
- ☐ Scrum Master
- ☐ Software Architect
- ☐ Project Manager
- ☐ Product Owner
- ☐ Other: _____

3. How long have you been working on this project? *

Mark only one oval.

- ☐ Less than 1 year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ More than 5 years

4. Which country did you spend the most time in during your participation in this project?

5. How many commits did you contribute to the project? *

Mark only one oval.

- ☐ Less than 10 commits
- ☐ 10-30 commits
- ☐ 30-50 commits
- ☐ 50-100 commits
- ☐ 100-200 commits
- ☐ 200-500 commits
- ☐ more than 500 commits

6. What is your sex?

Mark only one oval.

- ☐ Female
- ☐ Male
- ☐ I prefer not to answer
- ☐ Other: _____

7. What is your educational background (highest degree obtained)?

Mark only one oval.

- ☐ BSc
- ☐ MSc
- ☐ PhD
- ☐ Other: _____

8. What is your experience (in years) working in software development? *

Technical Debt

If you never heard of technical debt, we assure you that you have dealt with it in the past. If you already know what it is or have heard of it before, we just want to set a baseline for the context of this survey.

We use the term technical debt to express the increased effort required for maintaining a system due to shortcuts taken during its development.

To INTRODUCE technical debt means to take such shortcuts in development.

To REPAY technical debt means to fix such shortcuts (e.g., by refactoring the code).

These definitions are used for the rest of this survey.

9. Were you familiar with the presented description of Technical Debt before this questionnaire? *

Mark only one oval.

- ☐ Yes
- ☐ Somewhat
- ☐ No

10. For what reasons did you commonly modify code in the project? (mark all that apply) *

Check all that apply.

- ☐ Bug fixing
- ☐ New feature
- ☐ Refactoring

Other: ☐ _____

11. How often do you introduce technical debt? *

Mark only one oval.

- ☐ Always
- ☐ On a regular basis
- ☐ Sometimes, when it is absolutely essential
- ☐ Almost never
- ☐ Never
- ☐ I don't know

12. For what reasons have you introduced technical debt? (mark all that apply) *

Check all that apply.

- ☐ Deadline
- ☐ Inappropriate planning
- ☐ Lack of well-defined process
- ☐ Non-adoption of good practice
- ☐ Not effective project management
- ☐ Lack of qualified professionals that can manage technical debt
- ☐ Lack of experience
- ☐ Outdated or incomplete documentation
- ☐ Lack of commitment to the project
- ☐ Team overload
- ☐ I am not aware that I introduce technical debt

Other: ☐ _____

13. How often do you repay your own technical debt? *

Mark only one oval.

- ☐ Always
- ☐ On a regular basis
- ☐ Sometimes, when it is absolutely essential
- ☐ Almost never
- ☐ Never
- ☐ I don't know

14. For what reasons do you repay your own technical debt? *

Types of Technical Debt

In this section, we are eager to know how you manage different types of TD.

Specifically, we distinguish between five types of TD:

- CODE DEBT refers to code that is poorly written, violating best coding practices or code rules;
- DEFECT DEBT refers to uncorrected known defects;
- DESIGN DEBT refers to technical shortcuts that are taken within design decisions;
- DOCUMENTATION DEBT refers to insufficient, incomplete, or outdated documentation in any aspect of software development;
- TEST DEBT refers to shortcuts taken in testing

Considering your experiences in the project, please answer the following questions.

15. Do you recall ****noticing**** TD? Please respond per TD type **Mark only one oval per row.*

	Definetely not	Probably not	I am not sure	Probably yes	Definetely yes
Code Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Defect Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Documentation Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Test Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Do you recall ****introducing**** TD? Please respond per TD type **Mark only one oval per row.*

	Definetely not	Probably not	I am not sure	Probably yes	Definetely yes
Code Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Defect Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Documentation Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Test Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Do you recall ****repaying**** TD? Please respond per TD type **Mark only one oval per row.*

	Definetely not	Probably not	I am not sure	Probably yes	Definetely yes
Code Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Defect Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Documentation Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Test Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. Do you recall ****repaying** TD that you introduced yourself**? Please respond per TD type **Mark only one oval per row.*

	Definetely not	Probably not	I am not sure	Probably yes	Definetely yes
Code Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Defect Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Documentation Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Test Debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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