

Interactive Form for Tax Returns

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Priznání



Abstract

The goal of this project is to develop interactive forms for tax returns which are pretty easy to fill in for everyone without any experience in the economy or the tax law. The main purpose is to create simple forms for different types of people (e. g., businessman, employee, or student). The official application for tax returns (EPO) provided by The Ministry of Finance of the Czech Republic is complex. It offers many options which are usually unimportant for common users. Hence, it is often difficult to achieve the right result. This paper presents a new web application called “Priznání” which solves the problem by providing a set of simple yes/no questions to the users. The questions are based on the experience of revenue officers and taxpayers who need to fill the forms every year. After answering all these questions, the user can download a correctly filled form which can be send off to the revenue authority. At the current stage, the application provides the form for people in business. It successfully generates the Personal Income Tax form—the official document containing the information about personal income tax. The forms for different types of people are being developed.

Keywords: Tax — Form — Web application

Supplementary Material: [Live Demo](#) — [GitHub Repository](#)

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1. Introduction

Almost every Czech adult person knows the pink paper form with a lot of input fields and descriptions which are difficult to understand. It is very easy to make a mistake and start over. Lots of people have to fill those forms in every single year. According to official statistics [1], more than two millions of Personal Income Tax [2] forms in the Czech Republic are filed every year. Personal Income Tax belongs to the most important incomes of almost every country in the world. Like Benjamin Franklin once said “*In this world, nothing can be said to be certain, except death and taxes.*”

The application called “Priznání” offers a simple way of filling tax return forms. Instead of doing an-

noying paper work, users just fill in simple forms and generate the final tax return form which is ready for revenue authority. People can lose a lot of money if they are aware of all the non-taxable parts of the tax base[3], tax reliefs or tax credits. Hence, the important role of the proposed application is to show the users all of their possibilities a make this process as easy as possible.

The application is developed for the general public which means that the usage should be easy for everyone. The focus of this work is to create simple yes/no questions based on user experience (UX). Users do not need to know all the financial stuff, but they only need to answer some questions and fill in the answer fields with comprehensible titles and hints. They can view

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31 the form not only on their computer but also on other
 32 devices and download the Personal Income Tax form
 33 for example to their mobile phone or tablet.

34 2. Analysis of Requirements

35 User Experience belongs to primary assumption to cre-
 36 ate a product which is simple, elegant and satisfy user’s
 37 needs. Leah Buley [4] defines User Experience as a
 38 process of gathering the maximum amount of informa-
 39 tion about a user and about things that motivate them.
 40 Based on that, you can create a product which will sat-
 41 isfy their needs. The key aspect of creating a successful
 42 product is to involve people to process—especially the
 43 process of creation graphical user interface.

44 2.1 Tax Return Form

45 However, first of all, it was necessary to learn at least
 46 basic information about the taxation system in the
 47 Czech Republic and what tax return form is. This
 48 app is created primary for the Personal Income Tax
 49 because it is the most familiar tax and some taxpayers
 50 need to fill the forms every year. The important thing
 51 to learn was what kind of requirements people have to
 52 meet to have a tax liability. I found four main groups
 53 of taxpayers: people in business, employees, students,
 54 and pensioners.

55 After that, other important things are sections of
 56 the Personal Income Tax: tax base, non-taxable parts
 57 of the tax base, and tax reliefs. In every section, there
 58 are specific fields with a specific description for a par-
 59 ticular part of the tax.

60 2.2 Personas

61 We also need to understand who the user of our ap-
 62 plication is. In this case, I decided to create personas.
 63 Depending on information from revenue authority, I
 64 found out that the businesspeople and employees rep-
 65 resent the majority of people with a duty to pay the
 66 Personal Income Tax. Students and pensioners are
 67 only a small group compared to businesspeople and
 68 employees.

69 All information came from revenue authority in
 70 Otrokovice. It can be a little bit different in other parts
 71 of the country depending on the industry, agriculture,
 72 etc. In this region, the majority of employees submit-
 73 ting tax return forms are men. The reason is there are
 74 many factories or agricultural production and not that
 75 many office works. Overall, the percentage of men and
 76 women filling tax return forms are almost similar in
 77 the Czech Republic. Their average age is about 40. As
 78 for the businesspeople, this group is pretty much the
 79 same in all the country. Most taxpayers are men with

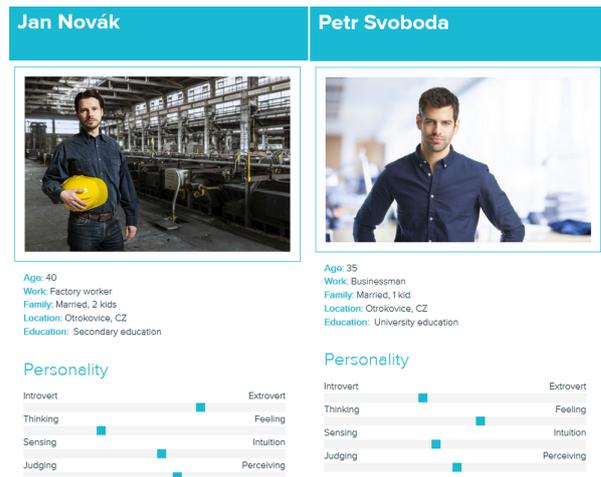


Figure 1. Example of persona for the "Přiznání" app. On the right side of the figure is a persona for employees group. On the right side is a persona for the group representing people in business.

an average age of 35. Figure 1 presents an example of personas.

2.3 Tax Return Form Submitting

In the Czech Republic, taxpayers have four options on how to submit their tax return form.

1. **Personally at revenue authority:** This is the simplest way how people can submit their forms in this country. Taxpayers can bring their filled and signed forms with all attachments to particular revenue authority. Taxpayers can acquire all forms at revenue authority or download it from the official website.
2. **Electronic submissions for financial authorities:** Taxpayers can submit their tax return form using official app. I will focus on the pros and cons of this app in the next section.
3. **Data Boxes:** Businesspeople with valid Data Box have a duty to submit the tax return form and communicate with all authorities via this system. If someone with Data Box does not use this system for submitting, he can be fined.
4. **At the post office:** This option is similar to the first one. Taxpayers can bring filled and signed forms with all attachments to a particular post office and send it to revenue authority. This option is good when a taxpayer is late during the last day of tax period, and revenue authority is already closed.

3. Existing Solutions

The Ministry of Finance of the Czech Republic has their own web application called "Electronic submissions for financial authorities" (EPO) with a lot of

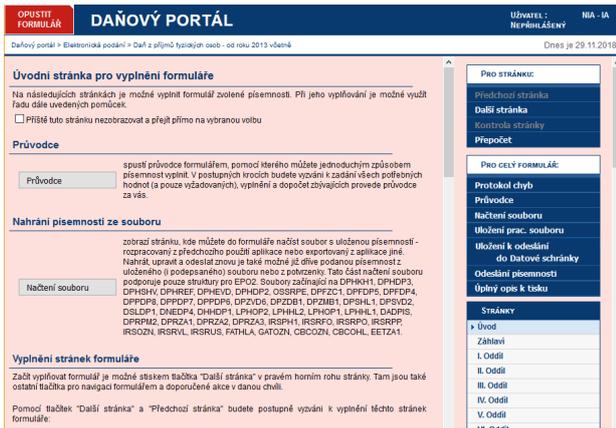


Figure 2. Analysis of the EPO non-responsive web application on computer—the Personal Income Tax form

112 useful functions for users. On the other, hand there
 113 are some disadvantages which will be discussed in this
 114 section. The primary purpose of EPO is to provide
 115 electronic forms for the most common taxes in the
 116 country. Users can export their tax return form into
 117 XML and then, they can send it with (or without) the
 118 electronic signature to the responsible authority.

119 3.1 Disadvantages of EPO

120 The main problem of this application is the graphical
 121 user interface (GUI). EPO is not responsive, so the
 122 filling their forms on other devices than a computer
 123 is not pleasant. The user interface is outdated, and it
 124 looks pretty confusing at first glance. Figure 2 presents
 125 a GUI of EPO app.

126 The forms are not user friendly despite many use-
 127 ful features. The layout of the page and arrangement
 128 of form inputs is similar to the layout of the paper.
 129 Although the EPO application offers forms for other
 130 taxes like Corporate Income Tax, Value Added Tax,
 131 Road Tax or Real Estate Tax, there is no filter for the
 132 selection of the form. Users can use a hint in every
 133 input field of the form, but the hint is represented by a
 134 small modal window which is not very well arranged.
 135 The user can maximize the window, but then, the win-
 136 dow will cover the entire content of the page so the
 137 user can not see his answer.

138 3.2 Advantages of EPO

139 As I mentioned earlier, EPO has some very useful
 140 features and offers forms for the most important tax
 141 returns. If users do not complete the form, they can
 142 save it to their computer. Later, they can upload it and
 143 continue to do their task. However, the current version
 144 of the application does not allow permanent storage
 145 of unfinished documents on the server of the General
 146 Financial Directorate.

The automatic evaluation of critical errors is the
 second useful feature. If users make some critical
 mistakes in their form, the system disables to export/
 submit the form. It means that all critical errors have
 to be removed before the submission. Besides that,
 the occurrence of critical errors in the file prevents the
 detection of minor errors.

The taxpayer can also use a useful feature called
 "Guide" to make the work easier for the user, but the
 page is confusing because of the large amount of text.

4. Design

After the analysis of EPO, the taxation system in the
 Czech Republic and a representative sample of people
 obliged to fill in tax return forms, it was crucial to
 understand and model the needs of people using EPO.
 For these reasons, I scheduled several meetings with
 the manager of the Personal Income Tax department at
 revenue authority in Otrokovice. Before each meeting,
 it was necessary to write down what we want to discuss.
 Based on the gathered information, I summarized the
 results and created a workflow diagram with questions
 for every important field like types of income, non-
 taxable parts of the tax base, tax reliefs and tax credits.
 Figure 3 presents an example of a workflow diagram.
 After that, we met again and adjusted the questions to
 the final shape.

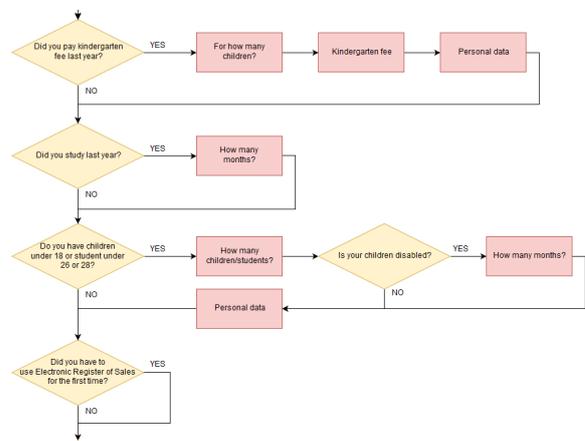


Figure 3. Example of some questions in workflow diagram based on the gathered information from revenue authority in Otrokovice

After creating the final workflow diagram and gather-
 ing all the information about common users, it was
 important to find out what types of errors users often
 do. Based on this information, I knew what questions
 need to be simplified and what parts of the workflow di-
 agram are the most important. This knowledge helped
 me build the final version of the form for Personal
 Income Tax.

This app is available for the general public, so the



Figure 4. On the left side of this figure is non-responsive official web application EPO on computer and tablet. On the right side is “Přiznání” app. Responsive web design (RWD) [5] is an approach to web design that makes web pages render well on a variety of devices and window or screen sizes.

182 big task is to create a responsive website. Responsive
 183 design allows for the content of a website to respond
 184 to its environment or device which is very important.
 185 Based on research, in 2018 more than 50% of overall
 186 traffic was used by other devices (mobiles and tablets)
 187 than desktop [6]. If you think of your content on
 188 a website as water, and pour it from one device to
 189 another the water remains the same, but the shape,
 190 environment, and view of the water is changed.

191 5. Implementation

192 The application is web-based. It uses HTML5 and
 193 CCS3. The front-end part of the application uses the
 194 Twitter Bootstrap framework. The interaction of users
 195 with the user interface is handled mainly by Javascript
 196 and its useful libraries.

197 5.1 Specification of Questions

198 The whole web is created with the HTML templating
 199 engine called Pug.js. It provides simpler Pug syntax
 200 for specification of webpage structure, which can be
 201 compiled into the HTML code, understandable by a
 202 browser:

```

203 .form-group.col-md-6
204   label
205     | Question
206     +napoveda('Title of help',
207       'Description of help')
208
209   input#id.form-control(
210     placeholder='placeholder...',
211     type='text',
212     required='')
  
```

213 Pug.js also has powerful features like conditions,
 214 loops, includes, mixins which allow creating reusable
 215 code working with user input or reference data. Every
 216 question defined in the workflow diagram was imple-
 217 mented in separate Pug.js file. It allows to reuse the

questions in different forms or simply modify the ques- 218
 tions. 219

5.2 Form Printing 220

221 The Javascript library called jsPDF is used for printing
 222 tax return forms. This library provides all functions
 223 for generating PDF files in client-side JavaScript. As
 224 an output file, I choose the PDF format. Since it is
 225 the most common format for storing documents, the
 226 majority of users will not have any problem to open
 227 it and print it for their revenue authority. For quicker
 228 generating, the library works with base64 data [7],
 229 which is a scheme that represents binary data in an
 230 ASCII string format by translating it into a radix-64
 231 representation.

5.3 Form saving 232

233 One of the main function of every form is the ability
 234 to save answers. Some users want to stop filling their
 235 forms after a few questions and save their form to their
 236 devices. For this reason, I used a simple CSV (Comma-
 237 separated values) file which is simple and manageable.
 238 The CSV file stores input ID and its value from the
 239 user in plain text. Each line of the file is a data record
 240 separated by a comma:

```

241 kapitalMajetekPrijem,5414
242 prijmyOstatni,61546
243 vydajeOstatni,4511
  
```

6. User Testing 244

245 In the beginning of the project, the prototype was
 246 tested by group of people with different education,
 247 age, computer skills, and experience. With the results
 248 of this test, I decided that the best solution for this
 249 problem is to create simple yes/no form where taxpay-
 250 ers will see all their choices. If the answer is “yes”
 251 users will have to fill additional fields related to that

252 question. However, if the users will choose “no“ they
253 will be moved to another question.

254 The output of this project is tax return form for
255 Personal Income Tax. Testing of functionality and
256 correct output have been done in collaboration with
257 the manager of Personal Income Tax department at
258 revenue authority in Otrokovice.

259 7. Conclusions

260 This paper described the information about the web
261 application for interactive forms for tax returns. The
262 main importance of this project is to provide simple
263 forms for the taxpayers who are forced to fill the in
264 tax return forms on their own. It is beneficial to help
265 people understand what discounts they can use and
266 what kind of incomes they have to pay for.

267 As the first step of a project, the theoretical anal-
268 ysis was made. It was important to understand the
269 taxation system in the Czech Republic, what kind of
270 non-taxable parts of the tax base, tax reliefs or tax
271 credits can people apply and what fields have to be
272 filled in. Also, it was also necessary to analyze the
273 official EPO application. I identified their strengths
274 and weaknesses and used the knowledge to implement
275 a new solution the “Příznání” app.

276 The main challenge was not to provide another
277 application with many options and possibilities, but
278 clear and simple forms, where users will not be lost.
279 Individual questions can be reused for another forms
280 and another taxes.

281 At the current stage, the first form for business-
282 people is implemented and successfully generate com-
283 plete personal income tax form. At the next stage,
284 more forms will be added. Based on information from
285 revenue authority, I have already selected the most im-
286 portant groups such as businesspeople, employees or
287 student. This app contains a form for businesspeople
288 at this moment so for the next two groups forms will
289 be added.

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