A problem has been detected and Windows has been shut down to prevent damage to your computer.

BAD_POOL_HEADER

If this is
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or softwa
If you ne
your computer, press F8 to select Advanced Startup Options, and then select Safe Mode.

Technical Information:

*** STOP: 0x0000000A (0xfffff680001a8c20, 0x0000000000000000, 0xfffff8000306d31b)

SonsOfSwe.exe

S S

Close

User Manual

Sons Of SWE - Project Marvin

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Informations about the manual

Version	2.0.0
Redaction	Cavallin Giovanni Favero Andrea Panozzo Stefano Thiella Eleonora
Verification	Favero Andrea Menegon Lorenzo
Approval	Dalla Riva Giovanni Thiella Eleonora
Use	External
Distribution	Vardanega Tullio Cardin Riccardo Red Babel Sons Of SWE group

Description
This document is the user manual of the Marvin Project

Diary of changes

Version	Date	Description	Author	Role
2.0.0	2018-07-13	Approval	Dalla Riva Giovanni	*Project responsible*
1.2.0	2018-07-13	Verification	Lorenzo Menegon	*Verifier*
1.1.2	2018-07-12	Updated the "Problems with the software "section	Andrea Favero	*Programmer*
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0.0.4	2018-06-03	Incremented the university section and written the user insertion section	Cavallin Giovanni	*Programmer*
0.0.3	2018-06-02	Written the university section	Cavallin Giovanni	*Programmer*
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0.0.1	2018-05-31	Written the document skeleton	Panozzo Stefano	*Programmer*

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1 Introduction

This is the user manual of **Marvin**, a *Đapp*$_{\text{G}}$ ran on the EVM, that shapes a subset of Uniweb functionalities. Uniweb is the University of Padua's informative system. It allows students to keep track of their academic carrier. Professors use Uniweb to see the lists of students that are registered to their exams and, see the exams to which they have been assigned.

More precisely:

A student will be able to:

- Subscribe to an exam;

- Confirm a mark;

- Visualize his/her booklet.

A professor will be able to:

- Visualize the exams to which he/she has been assigned;

- See the students registered to his/her exams;

- Assign marks to the students.

The university and the administrators will be able to:

- Create and delete academic years;

- Create and delete degree courses;

- Create and delete classes;

- Create exams;

- Create users.

To use Marvin you need to install *MetaMask*$_{\text{G}}$ to directly execute the Đapp on your browser.

All the users have to be logged through Metamask.

2 Use of the program

2.1 Requirements

- Mozilla Firefox version 50 or more

- Google Chrome version 60 or more

2.2 Metamask installation and configuration

Go to the site `https://metamask.io` .

If you're using Firefox, you will see a link named **GET FIREFOX ADDON**, click on it. Then click **Add to Firefox** and then click **Add** on the pop-up.

If you're using Chrome, you will see a link named **GET CHROME EXTENSION**, click on it. Then click **Add** and then click **Add extension** on the pop-up.

Now in the browser: click on the MetaMask icon on the top right and accept the Privacy Notice and the Terms of use by clicking on **Accept**.

2.3 Creation of a digital wallet

Insert a new password (it is needed to unlock the account) and click **CREATE** (as in Figure 1).

Figure 1: Setting the password

Now store somewhere on your drive the 12 words seed phrase (an example of seed phrase is showed in Figure 2).

Figure 2: The seed phrase

2.4 Restore the digital wallet

You have the possibility to restore your account if you loose the password or change the browser or even the computer. The only thing you need to do is to click on the Metamask icon and then click on **Restore**

from seed phrase. Now paste inside the box the seed phrase that you have saved previously, insert a new password and click **OK**.

2.5 Connection to the application

FINIRE LA SOTTOSEZIONE!!!

To use the application visit the page . . . .

Now you're able to use Marvin! You should see the Marvin main page (like the one showed in Figure 3).
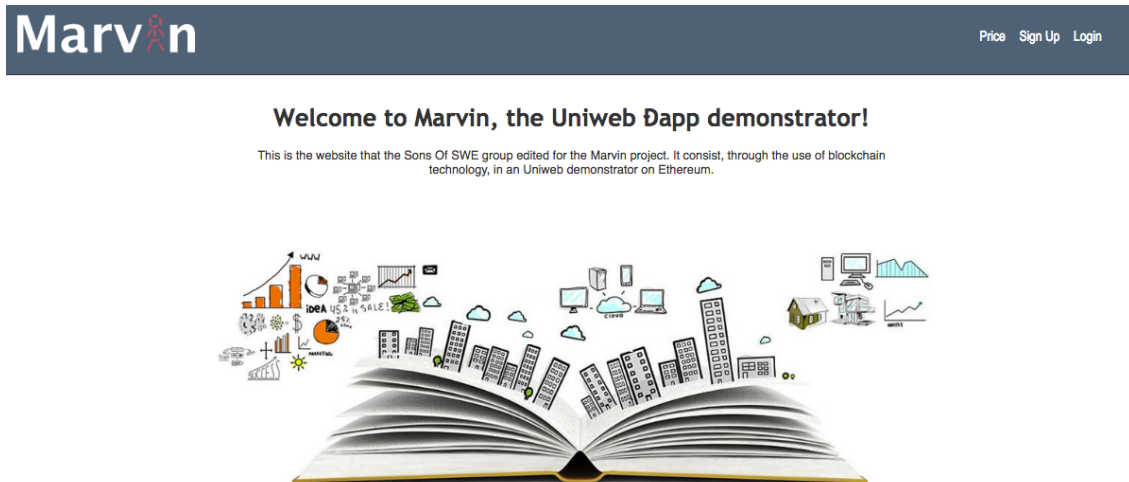
Figure 3: The Marvin main page

2.6 Operations prices

If you are interested in seeing the costs of the operations that the site allows you to complete, then you can click on the voice **Price**, listed in the blue bar located at the top of the screen. You will be redirect to a page like the one in Figure 4, that contains an always up to date estimation of the cost of the operations.

Operations prices

Operation	Gas cost	Low Cost Gas Price (1 Gwei)		Safe-low Gas Price (1 Gwei)		Average Gas Price (2 Gwei)	
		Cost (ETH)	Cost (EUR)	Cost (ETH)	Cost (EUR)	Cost (ETH)	Cost (EUR)
Adding a new admin	100000	0.0001 Ξ	0.04 €	0.00011 Ξ	0.05 €	0.0002 Ξ	0.09 €
Adding a new teacher	100000	0.0001 Ξ	0.04 €	0.00011 Ξ	0.05 €	0.0002 Ξ	0.09 €
Adding a new student	125000	0.000125 Ξ	0.05 €	0.00014 Ξ	0.06 €	0.00025 Ξ	0.11 €
Adding a new academic year	45000	0.000045 Ξ	0.02 €	0.00005 Ξ	0.02 €	0.00009 Ξ	0.04 €
Adding a new degree	110000	0.00011 Ξ	0.05 €	0.00012 Ξ	0.05 €	0.00022 Ξ	0.09 €
Adding a new class	150000	0.00015 Ξ	0.06 €	0.00017 Ξ	0.07 €	0.0003 Ξ	0.13 €
Adding a new exam	110000	0.00011 Ξ	0.05 €	0.00012 Ξ	0.05 €	0.00022 Ξ	0.09 €
Deleting an academic year	45000	0.000045 Ξ	0.02 €	0.00005 Ξ	0.02 €	0.00009 Ξ	0.04 €
Deleting a degree	65000	0.000065 Ξ	0.03 €	0.00007 Ξ	0.03 €	0.00013 Ξ	0.06 €
Deleting a class	60000	0.00006 Ξ	0.03 €	0.00007 Ξ	0.03 €	0.00012 Ξ	0.05 €
Deleting an exam	60000	0.00006 Ξ	0.03 €	0.00007 Ξ	0.03 €	0.00012 Ξ	0.05 €
Deleting an user	35000	0.000035 Ξ	0.01 €	0.00004 Ξ	0.02 €	0.00007 Ξ	0.03 €
User signUp	100000	0.0001 Ξ	0.04 €	0.00011 Ξ	0.05 €	0.0002 Ξ	0.09 €
Setting a valuation	65000	0.000065 Ξ	0.03 €	0.00007 Ξ	0.03 €	0.00013 Ξ	0.06 €
Enrolling to an exam	100000	0.0001 Ξ	0.04 €	0.00011 Ξ	0.05 €	0.0002 Ξ	0.09 €
Accepting a valuation	100000	0.0001 Ξ	0.04 €	0.00011 Ξ	0.05 €	0.0002 Ξ	0.09 €

Figure 4: The cost of the Marvin's operation

3 University

After the login you will be redirected to the page represented in Figure 5. As you can see, a black bar has appeared near the top of the screen. The black bar contains on its left the voices **Academic Years**, **Degrees**, **Classes** and **Exams**. On the right it contains the voices **Administrators**, **Teachers** and **Students**. The voices on the right allows the university to manage (create, visualize and delete) administrators, teachers and students.
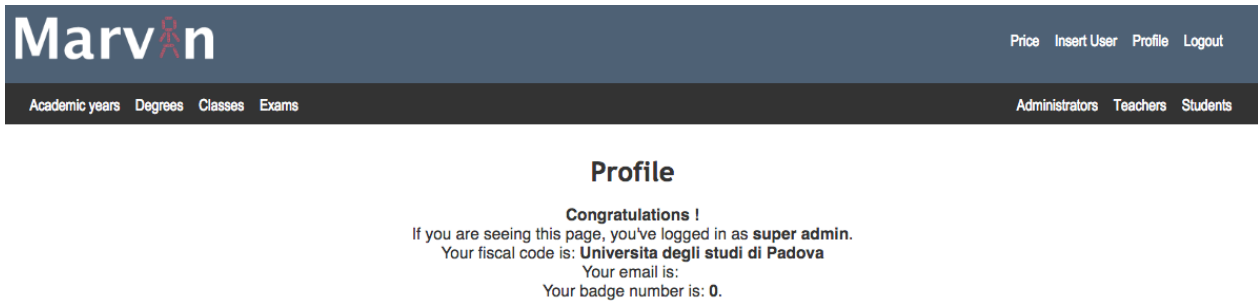
Figure 5: Login with University

3.1 Academic years

By clicking on the **Academic years** voice in the black bar, you will see (as in Figure 6) a register of all the academic years inserted in the system. For each academic year you can *insert degrees* and *delete the academic year*.

Figure 6: Register of the the academic years in the system.

3.1.1 Creation of a new Academic Year

Click on the button **Insert academic year**, you will be redirected to a page (like the one in Figure 7). Insert the name of the accademic year and click the **save** button. The name of the accademic year has to follow this simple rule: it must start with four digits followed by a "-" character, which has to be followed by other four digits. The first digit of every block has to be "2". You cannot insert an accademic year that is older than the current year, for example, if we are in the year 2018, you cannot insert the accademic year 2017-2018.

Figure 7: Insertion of a new academic year in the system.

3.1.2 Insertion of a degree

Click on **Insert degree**, you will be redirected to a page (like the one in Figure 8), insert a *Degree description* (for example "Computer Science") and, insert an unique code for that degree (for example "CSLT17'), the code must be 6 characters long and it has to *start with four capital letters* and *end with two digits*. Click the **save** button.
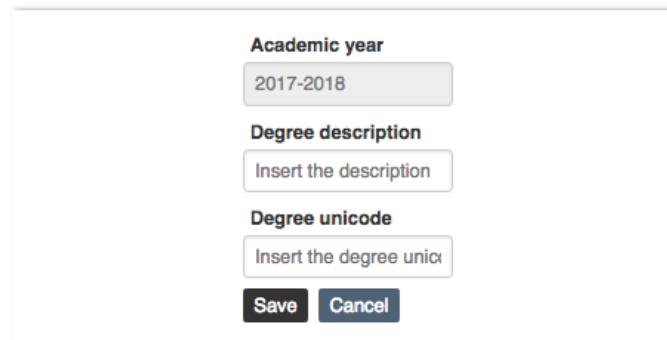
Figure 8: Insertion of a degree.

3.1.3 Deletion of an academic year

Click on the **Delete** button, you will be redirected to a page (like the one in Figure 9), then click the **Delete** button to confirm the deletion.

Delete academic year

Are you sure you want to delete this academic year? Once you delete it, you can't go back.

Acaddemic year: 2013-2014

Delete   Cancel

Figure 9: Deletion of an academic year.

3.2   Degrees

By clicking on the **Degrees** voice in the menu, you will see (as in Figure 10) a page that asks you to choose an academic year.

Degrees

List of the degrees.

Select academic year
-- select an year -- ↕

Figure 10: Academic Years choice.

After choosing the academic year you want, the page will be updated with a list of all the degrees associated with that academic year (as in Figure 11) . For each degree you can *insert a class* or *delete the entire degree and all the classes associated with it*. If you want to insert a new degree, then click on the **Insert degree** button; the procedure is the same as the one described in 3.1.2.

Degrees

List of the degrees.

Select academic year
2017-2018 ↕
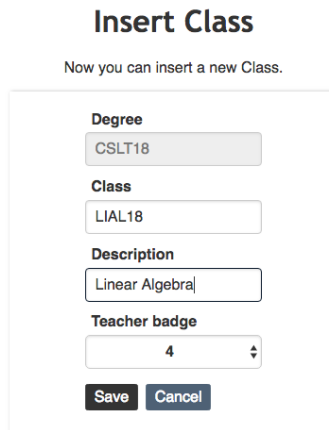
Insert degree

Year	Degree unicode	Degree description	Class		
Academic year 2017-2018	CSLT17	computer science	Insert Class	X	Delete
Academic year 2017-2018	MAT17	Matematica	Insert Class	X	Delete
Academic year 2017-2018	PSI17	Psicologia	Insert Class	X	Delete
Academic year 2017-2018	CSLM17	Computer Science	Insert Class	X	Delete

Figure 11: Register of the degrees related to a certain academic year in the system.

3.2.1 Insertion of a class

To insert a class related to a degree, click on the link **Insert class** of the degree you choose. You will be redirected to a page like the one in Figure 12. Insert a class code (it must be formed by six characters, *four capital letters* followed by *two digits*, for example "ALGO18") and insert a brief description (for example "Algorithms"). After that you will have to assign a teacher to the course. To do that, choose a teacher badge among those available in the list. A teacher badge can be available only if at least one teacher has been added to the system previously, to do that read 3.3.1. After the badge number has been chosen, click the **Save** button.
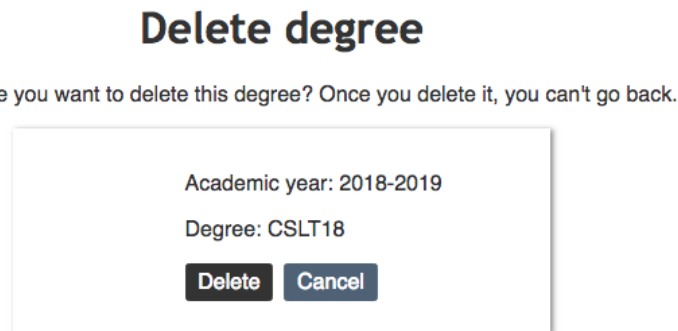
Figure 12: Insertion of a class.

3.2.2 Deletion of a degree

To delete a degree, click on **Delete** button of the degree you choose. You will be redirected to a page (like the one in Figure 13). Click the **Delete** button and confirm.

Figure 13: Deletion of a degree.

3.3 Classes

By clicking on the **Classes** voice in the menu, you will see (as in Figure 14) a page that asks you to choose an academic year and then one of its degree programs.

After choosing the academic year and the degree program you want, the page will be updated with a list of all the classes (as in Figure 15) . For each class you can *insert an exam* or *delete the class*. If you want to insert a new class, then click on the **Insert Class** button; the procedure is the same as the one described in 3.2.1

Figure 14: Choice of an academic year and one of its degree programs .

Figure 15: Register of the classes of the Computer Science degree.

3.3.1 Insertion of an exam

To insert an exam related to a class, click on the link **Insert exam** of the class you choose. You will be redirected to a page like the one in Figure 16. Choose the type of the exam (*written, oral, practice*), write the name of the place in which the exam will be helded, insert the date and the time and a Unicode. A valid Unicode consists of the class code followed by "-" followed by two digits between "00" and "99". The date of the exam must be later than the current day and the time must be inserted in a range between "8:30" and "17:30"

Figure 16: Insertion of an exam in the system.

3.3.2 Deletion of a class

To delete a class click on its **Delete** button. You will be redirected to a page (like the one in Figure 17). Click the **Delete** button.

Figure 17: Deletion of a class.

3.4 Administrators, Teachers and Students management

When you choose a voice on the right side of the black bar located near the top of the screen, you're selecting a category between *Administrators*, *Teachers* and *Students*. Depending on your choice, you will see a list of administrators, or teachers or students, for example a list like the one in Figure 18. As you may notice looking at the table in the figure, the cell of the column named "*Is signed up*" has a green dot if the inserted user has logged in, otherwise it has a red dot. An inserted user that never signed up can be eliminated by clicking on the relative deleted button.

Figure 18: List of the teachers in the system.

3.4.1   User Insertion

Inserting an user in the system is an operation that has two phases:

- The first one requires that the university (or an admin) clicks on the correct voice (he/she has to choose between *administrators, teachers, students*) in the black bar depending on the type of user he/she want to insert and then, clicks on the button **Insert an admin** (respectively **Insert a teacher**, **Insert a student**) to creates a new account in the system.

  You will be redirected to a page similar to the one in Figure 19. Then you'll have to inserting the fiscal code of the user and an unique code of ten digits. If the user is a Student, then you have to select also an academic year and a degree.

  You can also insert an user by clicking the **Insert user** button in the blue bar located on the top of every page;

Figure 19: Student insertion by an admin or university account

- The second one is necessary to authenticate and identify the new user: in fact, the new user during the Sign Up will have to insert its own Fiscal Code and the Identification Code issued by the university (or an admin), and other data as in Figure 20. If this two data (Fiscal Code and Identification Code) are the same as those inserted by the University (or an admin), then all the user's personal data will be saved and its Metamask address connected to the account, so that the next logins can be made automatically. If the form has been filled correctly, then a Metamask window will be opened in front of you. Confirm clicking the **SUBMIT** button.

Figure 20: User Sign Up

4 Administrators

An administrator has the same privileges of the university user but he/she can't create new administrator users.

5 Teachers

First of all, if you haven't done it yet, you have to sign up inserting your name, surname, mail address, fiscal code, the unique code that had been given to you by the university personell and (optionally) a profile image. After the login you will notice that a black bar has appeared near the top of the screen.

5.1 Exams List

The black bar contains on its left the voice **Exams list**, if you click on that voice, you will be redirected to a page (similar to the one in Figure 21) that asks you to choose a class to which you had been assigned.
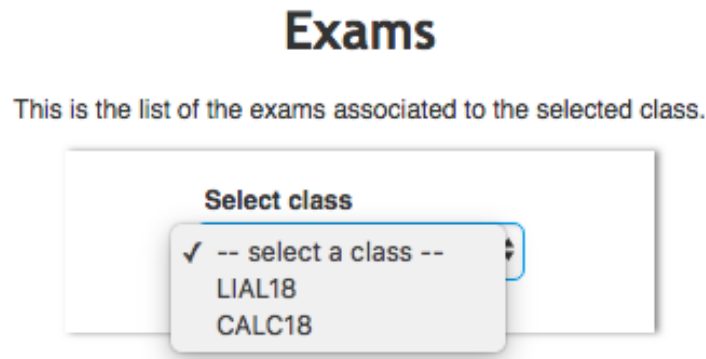

Figure 21: Choiche of a class

After that, the page will be updated with a list of all the exams of your classes (similar to the one in Figure 22).

Figure 22: List of the exams of a class

If you click on the link **Go to the list of subscribed students**, you will be redirected to a page that contains all the exams related to the selected course (as in Figure 23).

Students registered to the exam with code: RETI17-3

Here there is the list of the students that are registered to the exam RETI17-3.

Total registered students: 2

Badge number	Vote
11	32
10	18

Save

Figure 23: Marks given by the professor to his/her students

You can give a mark to every student that is registered to the exam. The mark must be a number in the range *0 - 32*. To save the marks click on the button **Save**

6 Students

First of all, if you haven't done it yet, you have to sign up inserting your name, surname, mail address, fiscal code, the unique code that had been given to you by the university personell and (optionally) a profile image, otherwise you only need to click on the login button. After the login you will notice that a black bar has appeared near the top of the screen. The bar contains the voices **Exam session**, **Booking board** and **Booklet**.
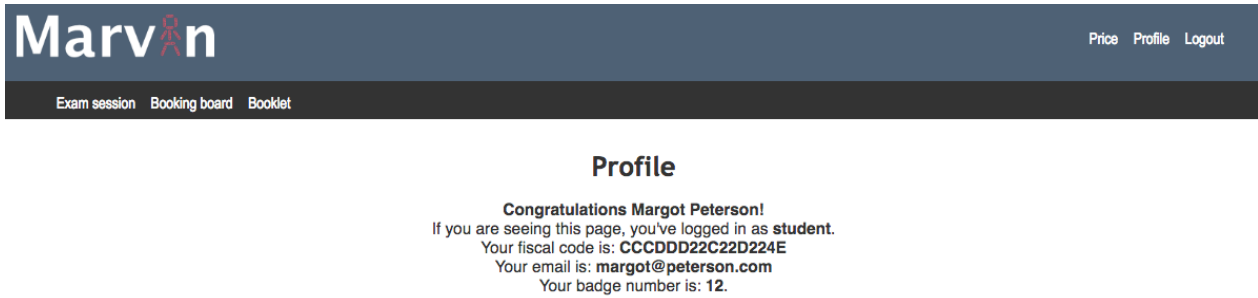

Figure 24: Student profile page

6.1 Exam Session

To visualize the list of the exams to which you can subscribe, click on the voice **Exam session**, you will be redirected to a page similar to the one in Figure 25 . If you want to subscribe to an exam, then click on the button **subscribe** of the exam you choose.

Class unicode	Exam unicode	Type	Place	Date	Time	Teacher	Subscribe
RICE17	RICE17-3	Written	1C150	2017-09-13	09:00	5	subscribe
CALC17	CALC17-3	Written	LUF1	2017-09-07	09:00	3	subscribe
RICE17	RICE17-2	Written	1C150	2017-07-15	14:30	5	subscribe
RETI17	RETI17-2	Written	LUM250	2017-07-07	14:30	2	subscribe
CALC17	CALC17-2	Written	LUF1	2017-06-28	14:30	3	subscribe
RETI17	RETI17-1	Written	LUM250	2017-06-11	10:30	2	subscribe
RICE17	RICE17-1	Written	1C150	2017-06-10	10:30	5	subscribe
CALC17	CALC17-1	Written	LUF1	2017-06-06	10:30	3	subscribe

Figure 25: List of exams to which the student can register and to which is already registered.

After that you will be redirected to your *booking board*, where you can see all the exams to which you subscribed and also accept the marks of the ones that you passed.

6.2 Booking board

If you want to visualize the classes to which you subscribed, then click on the voice **Booking board**, you will be redirected to a page similar to the one in Figure 26. If a certain exam has a mark, then you can accept it by clicking on the **confirm** button (if an exam hasn't a mark yet, then the button is unclickable) and you will be redirected to your *booklet* page where you can visualize all the classes that you passed. When you accept a vote, this one disappears from the booking board and it is saved in the booklet.

Class unicode	Exam unicode	Type	Place	Date	Time	Mark	Confirm
PROG17	PROG17-1	Written	LUF1	2017-06-05	10:30	25	confirm
BASI17	BASI17-3	Written	LUM250	2017-09-09	09:00		confirm
RETI17	RETI17-3	Written	LUM250	2017-09-08	09:00		confirm

Figure 26: List of the exams to which the student is subscribed

6.3 Booklet

To visualize the list of all the classes that you have passed and the marks you got, click on the voice **Booklet**, you will be redirected to a page (similar to the one in Figure 27).

Your Booklet

This page shows the list of the exams you've passed and their marks

Class unicode	Description	Mark
PROG17	Programmazione 1	21
RETI17	Reti e sicurezza	32
CALC17	Calcolo numerico	30
RICE17	Ricerca operativa	29

Figure 27: List of the classes passed by the student.

7 Problems with the software

The member of the Sons Of SWE group did their best to develop Marvin, including an extensive testing and debugging phase. Unfortunately, as E.W. Dijkstra used to say, "Program testing can be used to show the presence of bugs, but never to show their absence". For this reason it is possible, even if we hope not, that the program contains some bugs.

7.1 Error reporting

You can report malfunctions to the mail address sonsofswe.swe@gmail.com or at the Marvin repository on github (`https://github.com/SOS-SonsOfSwe/Marvin-SoS/issues`).

If you want to write an email to report an error, then you must insert in the *Subject* of the mail the tag [ERROR].

7.1.1 Error reporting informations

To make your report effective, you should insert the following informations in the massage (regardless of the platform, whether it is the mail or github):

- The type of involved user (university, admin, teacher, student);
- A detailed sequence of steps that must be done to reproduce the error (for example: "click on the **Exam List** voice in the bar, then click on the **Subscribe** button, . . . ");
- The behavior of Metamask when the error occours (for example if it signals a failed transaction);
- Your browser's console log output. To get this information, take the following steps:
  - if you're using Firefox press the sequence of keys *Ctrl + Shift + K* (for MacOS: *Cmd + Opt + K*) to view the console, then click with the right button on it, choose the option **Select All**. Redo a right click and choose the option **Copy**;
  - if you're using Chrome press the sequence of keys *Ctrl + Shift + J* (for MacOS: *Cmd + Opt + J*) to view the console, then click with the right button on it, choose the option **save as...**, then choose the destination folder and click on the **save** button.
- a description of the error.

Glossary

D

- *Ðapp* : a Ðapp, also called *decentralized application*, is an application that has its backend code running on a decentralized peer-to-peer network. Contrast this with an app where the backend code is running on centralized servers. A Ðapp can have frontend code and user interfaces written in any language (just like an app) that can make calls to its backend. Furthermore, its frontend can be hosted on decentralized storage such as IPFS.

M

- *Metamask*: it is an Ethereum Wallet that lets you run Ethereum's Ðapp directly from your browser.