**IMAT3451 Project Contract Template**

**Student Name Judyta Dabek**

**P-number 15238407**

**Programme Computer Science**

**Email address** [**Judyta.dabek@gmail.com**](mailto:Judyta.dabek@gmail.com)

**Project Title Go Diet**

**Project Proposer self**

The name, affiliation and contact details of the project proposer; ‘Self’ if it was proposed by you.

e.g. A. Proposer, Placement Corporation, 011111111, proposer@pcorp.com

or M.Y. Lecturer, Department of Computer Technology, myl@dmu.ac.uk

**Supervisor**

Dr Aladdin Ayesh, School of Computer Science and Informatics, tel. 0116 250 6295,

@: [aayesh@dmu.ac.uk](mailto:aayesh@dmu.ac.uk)

The name, affiliation and contact details of the supervisor, if different from proposer.

**Introduction**

A brief but concise statement of the nature of the project.

The aim of the project is to enable an individual user to use a modern tool allowing recording of its weight and adjusting diet by selecting appropriate recipes that meet certain dietary criteria. The application based on some personal indicators should judge whether a person is classified to go on a diet to reduce weight, or whether the weight is appropriate and there is no need to. In the case where the user should go on a diet, the recipes should be adapted to the special needs of the user. The user should be able to record his weight every day, thanks to which statistics can be produced and predictions can be made for more effective adjustment of dietary recipes and outputted in nice, graphical way.

The software will be running on desktop machine. There are similar applications running on mobiles and other devices, but some users may prefer to make better use of desktop application – on computers. Having many applications can greatly reduce space on mobiles – and can be somewhat limited. Desktop application can be more robust than the mobile one.

**Project Background**

A brief description (a paragraph of 100-200 words) providing the project background/context. e.g. is it based on a business need? a technical need? does it arise from the interests of a particular person/company?

The application is addressed to individual users who would like to take advantage of tools that enable them to achieve their desired goals, such as healthy weight. It is the answer to the increasing needs for controlling processes leading to the reduction of body weight, mainly fat tissue. It can be used as a support for a person using dietologists' advice, combined with moderate physical exercises tailored individually or simply wanting to maintain a healthy, balanced lifestyle. The task of the application is to motivate the user to achieve the desired goal, show the statistical data of the progress during the use of the diet program and intelligent prediction and selection of recipes based on available methods in the field of machine learning and artificial intelligence. The idea is developed by the student itself from scratch, it resulted in lack of satisfaction from existing online diet programs and need to improve these diet programs.

**Aim/Objectives/Deliverables**

This is the heart of the Contract, and will require discussion with your supervisor and possibly several iterations to get it right. It is against the objectives and proposed deliverables that the final product will be assessed. So it is important to ensure that all aspects of the assessment criteria (see Blackboard) are included in the list of objectives/deliverables.

**Aims**: a statement of the overall aims of the project (in one or two sentences).

The aim of this project is to provide a desktop application that will allow users to get better insight into results and achieve desired goals while going on a diet to lose weight or maintain a healthy, balanced way of eating. Desktop application can appear to be more efficient and provide extra functionalities, such as possibility to print out the recipes which will be handier for the user.

**Objectives**: a list of specific, measurable objectives, each of which is likely to result in a deliverable. They specify all the work tasks to be undertaken to meet the stated aim. They will vary from project to project, as every project is different, but some examples are provided below.

1. Deliver a model assessing if a user should go on a diet or not using classification algorithm.

2. To propagate associate learning algorithms that correlate with user’s live data to produce a multitude of live self-regulating algorithmic results that track user’s eccentric weight loss progression in a graphical paradigm.

3. To explore machine learning algorithms and deliver a prediction modelling which will allow to adjust recipes based on number of calories etc for everyday meals.  
4. Deliver a feature enabling printing selected recipes to PDF file

5. Deliver databases containing recipes, data needed for classification and prediction  
6. Deliver accurate, concise documentation.

**Deliverables:** a list of your Project’s deliverables with some general description. **Please list in your contract only those that apply and remove everything else.**

|  |  |
| --- | --- |
|  | **Development Projects** |
| **Final Submission**  These are some examples: each project will need a complete set of objectives/deliverables  Week 27 | * Project contract (elucidation of the problem, the objectives of the project, risk analysis) * Ethics form * Project ­­­­­Plan (e.g., Gantt Chart) * Global Checklist * Literature Review * Requirements * Use Case Diagrams/Use Case Descriptions/Class diagrams * Lifecycle (management approach with justification, adjusted plan for progressing with project) * Description how verification and validation were applied * Description of the use of tools to support the development process * Final Report (containing critical appraisal of the project, indicating the rationale for any design/implementation decisions, lessons learnt during the course of the project and evaluation of the project outcome and the process of its production with a review of the plan and any deviations from it) * Description of research hypothesis if any * All research will be fully referenced * Software * Appendices (e.g. further design documentation, test logs) * Maximum word count (main body): 10.000. |
| **Viva examination:** attended by the supervisor and the 2nd marker  Weeks 31-33 | * Oral examination (demo of your work) |

Students on a BCS accredited course should consult the BCS checklist before completing their project contract, as it includes eight conditions that the project contract should fulfil, such as

* The contract contains an elucidation of the problem, the objectives of the project, and a risk analysis
* The contract states that the final report will contain a clear description of the stages of the life cycle undertaken
* The contract states that the final report will contain a description of how verification and validation were applied

Most of these requirements also make sense for other students’ project contracts.”

**Resources and Constraints**

A list of any specific resources that the project requires; for example, hardware and software; access to people or organisations.

A list of any known constraints, for example availability of certain resources.

Tooling

* Environment: Visual Studio 2017 – it is supposed to enable usage of MatLab language, Python and C#, should allow producing application working well on Windows OS.

Languages:

* C# as base programming language, ideal for applications working on Windows. It will serve as a base language.
* Perhaps some libraries of Python and MatLab in order to make a great use of Machine Learning and AI algorithms
* JSON files can be used for storing recipes data

Constraints:

* Time
* Data required for creation of mini database containing recipes
* Data model which will serve for classification and prediction modelling
* Programming languages compatibility issues if encountered
* Personal knowledge of Machine Learning and Artificial Intelligence topics

**Sources of Information**

A list of sources you intend to use. These could include:

* Specific books/journals if you already know of them;
* Library/Internet;
* Organisations or individuals you intend to contact.

Books:

* "Python in Data Science”

Library/Internet

* Sources available on ACM learning site, conducted by O’Reilly
* <https://www.coursera.org/learn/machine-learning/home/welcome>
* Other courses provided by Coursera
* Scientific journals about healthy life style and nutrition

Organisations or individuals:

* To be agreed

**Risk Analysis**

What could endanger your project, what will you do if it happens.

1. Limited time for building application. SOLUTION: Planning work up front.

2. Languages - for this application as best choice C# as base language has been selected. C# language seems to be the most compatible with Windows OS. In order to use Machine Learning and AI libraries Python and MatLab are intended to use. Visual Studio 2017 has been selected as working environment due to compatibility with Windows OS. The risk lies in integration of these languages in one application. SOLUTION: use of extensive libraries may be required.

3. Project will require substantial amount of data, such as set of recipes, data required for classification and prediction. SOLUTION: use of JSON files for storing information important for appropriate working of the application. JSON files are light weight and do not require to be stored in web-based databases.

4. Project will require some type of data in order to perform simple classification and prediction modelling. SOLUTION: reuse existing and open source data or create own data.

5. Project may require introducing some changes to initial plan due to its feasibility. For example, instead of using JSON files for storing data it may appear that using any SQL database may be more beneficial. SOLUTION: recording lessons learnt for better referencing.

**Schedule of Activities**

Having defined the tasks to be undertaken in the list of objectives, you need to prepare a Project Plan to show how you intend to carry them out: You may find it helpful to draw up a critical path diagram before drawing a Gantt chart.

Plan for this project in form of Gantt Chart can be found below.

A close up of text on a white background

Description generated with high confidence

A screenshot of a cell phone

Description generated with very high confidence

**Student Judyta Dabek\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date 12/10/2018**

**Proposer** (if other from the student and/or the supervisor)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Supervisor Aladdin Ayesh\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Keep the signed copy somewhere safe: include it with your initial submission. Your supervisor will require a copy as well.

**IMAT3451 BCS Accreditation Checklist**

**Student Name Judyta Dabek**

**P-number 15238407**

**Programme Computer Science Bachelor’s Degree with Hons**

**Email address Judyta.dabek@gmail.com**

**Project Title Go Diet**

**Project Proposer Self**

The name, affiliation and contact details of the project proposer; ‘Self’ if it was proposed by you.

e.g. A. Proposer, Placement Corporation, 011111111, proposer@pcorp.com

or M.Y. Lecturer, Department of Computer Technology, myl@dmu.ac.uk

**Supervisor**

Dr Aladdin Ayesh, School of Computer Science and Informatics, tel. 0116 250 6295,

@: [aayesh@dmu.ac.uk](mailto:aayesh@dmu.ac.uk)

**BCS Accreditation**

Your supervisor needs to check your contract against this list and sign if you are on a BCS accredited course. Take note of this and be sure that you mention all requirements.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| This contract contains an elucidation of the problem, the objectives of  the project and a risk analysis | | | | ✓  **Yes** | **No** |
| The contract states that the project will include an in-depth investigation of the context and literature, and where appropriate, other similar products | | | | ✓  **Yes** | **No** |
| The contract states that the final report will contain a clear description of the stages of the life cycle undertaken | | | | ✓  **Yes** | **No** |
| The contract states that the final report will contain a description of how verification and validation were applied. | | | | ✓  **Yes** | **No** |
| The contract states that the report will contain a description of the use of tools to support the development process | | | | ✓  **Yes** | **No** |
| The contract states that the final report will contain a critical appraisal of the project, indicating the rationale for any design/implementation decisions, lessons learnt during the course of the project, and evaluation (with hindsight) of the project outcome and the process of its production (including a review of the plan and any deviations from it) | | | | ✓  **Yes** | **No** |
| The contract states that there will be a description of any research hypothesis | | | | **Yes** | X  **No** |
| The contract states that all research will be fully referenced | | | | ✓  **Yes** | **No** |
| **Contract is suitable for BCS Accredited Project** | **Yes** | **No** | **Supervisor**  **Signature** |  | |

**Student Judyta Dabek\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date 19/10/2018\_\_\_\_\_**

**Proposer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Supervisor\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Then keep the signed copy somewhere safe: include it with your initial submission. Your supervisor will require a copy as well.

**IMAT3451 FINAL YEAR PROJECT - ETHICAL REVIEW FORM**

The University requires all undergraduate final year projects to undergo an ethical review and, where human research ethical issues are identified, to ensure that these issues are addressed.

For the majority of Computing Final Year Projects, the outcome will be either ‘No ethical issues’ or ‘Minor/Major ethical issues which have been addressed’; in these cases approval can be given by the supervisor. In the unlikely event that the outcome is ‘Ethical issues that have not been addressed’, the completed form will need to be forwarded to the Faculty Research Ethics Committee.

**Student Name** **Programme**

Judyta Dabek

Computer Science Bachelor’s Degree with Hons

**Project Title**

Go Diet

**Brief description of proposed activity and its objectives:**

**Description:**

The aim of the project is to enable an individual user to use a modern tool allowing recording of its weight and adjusting diet by selecting appropriate recipes that meet certain dietary criteria. The application based on some personal indicators should judge whether a person is classified to go on a diet to reduce weight, or whether the weight is appropriate and there is no need to. In the case where the user should go on a diet, the recipes should be adapted to the special needs of the user. The user should be able to record his weight every day, thanks to which statistics can be produced and predictions can be made for more effective adjustment of dietary recipes and outputted in nice, graphical way.

The software will be running on desktop machine. There are similar applications running on mobiles and other devices, but some users may prefer to make better use of desktop application – on computers. Having many applications can greatly reduce space on mobiles – and can be somewhat limited. Desktop application can be more robust than the mobile one.

**Objectives:**

1. Deliver a model assessing if a user should go on a diet or not using classification algorithm.

2. To explore machine learning algorithms and deliver practical feature in form of graphical way for outputting collected by the user data (progress in weight loss) using potentially Python libraries for data visualisation.

3. To explore machine learning algorithms and deliver a prediction modelling which will allow to adjust recipes based on number of calories etc for everyday meals.

4. Deliver a feature enabling printing selected recipes to PDF file

5. Deliver databases containing recipes, data needed for classification and prediction

6. Deliver accurate, concise documentation.

**Ethical Issues Identified: How these will be addressed:**

(see overleaf)

Probably the modelling will be based on scientific statistics regarding the healthy lifestyle. There are many free sources on the Internet which will allow to create modelling without a need to collect data from the users. Eventually any of the ready databases containing outcome of research may be used if found. If not then modelling will be based on general common and published knowledge regarding this topic, including creating data as predicted from scratch to satisfy needs of this modelling.

Very minor ethical issues could be potentially identified regarding mostly they way classification and predictive modelling will be designed.

If any ready-to-use database containing data for prediction will be used then it might be related to if the project will be allowed to use this data.

**Checklist**

Has the project proposal identified any of the following research procedures?

1. Gathering information about human beings through: Interviewing, Surveying,

Questionnaires, Observation of human behaviour Yes

2. Using archived data in which individuals are identifiable No

3. Researching into illegal activities, activities at the margins of the law or

activities that have a risk of personal injury No

4. Supporting innovation that might impact on human behaviour

e.g. Behavioural Studies No

**If ‘Yes’ to any of 1-4 above: have you considered the following?**

✓ Providing participants with full details of the objectives of the research

✓ Providing information appropriate for those whose first language is not English

✓ Voluntary participation with informed consent

✓ Written description of involvement

✓ Freedom to withdraw

✓ Keeping appropriate records

✓ Signed acknowledgement and understanding by participants

✓ Consideration of relevant codes of conduct/guidelines

**Ethical Review Outcome**

🞏 1. No ethical issues

✓ 2. Minor ethical issues which have been addressed and concerns resolved

🞏 3. Major ethical issues which have been addressed and concerns resolved

🞏 4. Ethical issues that have not been resolved/addressed

**Authorisation**

*If the outcome is no. 3 or 4 above, this form should be forwarded to the Faculty Research Ethics Committee.*

Signature of student Judyta Dabek\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date 19/10/2018\_\_\_\_\_\_\_

Signature of supervisor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**IMAT3451 FINAL YEAR PROJECT - Global Checklist**

The University requires all undergraduate final year projects students to undertake a global review of their project. Here is an International Impact Checklist for you to complete, which can be done in consultation with the project supervisor.

**Student Name** **Programme**

Judyta Dabek

Computer Science B.S. with Hons

**Project Title**

Go Diet

**Please indicate which of these possible attributes is addressed by your undertaking of this project.**

|  |  |
| --- | --- |
| **Possible Global Experience** | **Addressed by Project** |
| Ability to work collaboratively: teams from a range of backgrounds and countries | No |
| Excellent communication skills with a sensitivity to speaking with and listening to non-native English speakers | Yes |
| An ability to embrace multiple perspectives and challenge thinking in a range of cultural context | No |
| A capacity to develop new skills and behaviours according to role requirements | Yes |
| An ability to negotiate and influence clients across the globe from different cultures | Yes |
| An ability to form professional, global networks | Yes |
| An openness to/respect of a range of perspectives from around the world | Yes |
| Multi-cultural learning agility (i.e. able to learn in any culture or environment) | Yes |

**Brief description of how the ticked attributes have been addressed:**

Excellent communication skills with a sensitivity to speaking with and listening to non-native English speakers – by using vocabulary commonly existing in international English;

A capacity to develop new skills and behaviours according to role requirements – by using material outside of the scheduled learning scope;

An ability to negotiate and influence clients across the globe from different cultures – possibly, final product may be used by anyone;

An ability to form professional, global networks – perhaps; project may require some consultations which may be great opportunity to establish professional network;

An openness to/respect of a range of perspectives from around the world – by careful research and adopting scientific approach in modelling the mechanisms of the application;

Multi-cultural learning agility (i.e. able to learn in any culture or environment) – as I am Polish studying on English university I mind this attribute as proven.

Signature of student Judyta Dabek\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date 19/10/2018\_\_\_\_\_\_\_

Signature of supervisor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_