

## Database-Driven Web Application Development

### Assignment Summary/FAQ

#### What is it?

The assignment is to create a working “web application” that fulfils the specification on these pages in your assigned groups. Please read this document IN FULL.

#### How is it assessed?

The final submission (including the online, functioning site and the archived code) will be marked, and you’ll also have a “written viva”. These aspects will form a single group mark. Your individual mark will be based on the group mark but proportional to an individual “contribution factor” that the group determines for each person. The module team may also inform this contribution factor.

#### When is it due?

**The week of the 25<sup>th</sup> March 2019**

#### What do we need to hand in?

- A ZIP file containing:
  - A Word document which includes:
    - A URL at which someone could access a fully operational, running version of your application.
    - Any passwords/logins that would be needed for someone to adequately test all the functions of your site.
    - (optional) Any other information you think someone might need to adequately test your site
  - A SQL dump of your final database
  - All the code – PHP, CSS, HTML, Javascript – that comprises your application
- **IF ANY OF THESE ITEMS (other than the optional one) ARE NOT HANDED IN, WE WILL CONSTRUE THIS AS A NON-SUBMISSION AND THE FRAGMENTS SUBMITTED WILL NOT BE MARKED.**

#### How much is it worth?

25% of the module total.

#### Who’s in my group?

This coursework is common with the module *Projects and their Management*. You will be assigned to a group that is approximately five people.

#### How does this common coursework thing work?

PatM will be concerned with assessing your project management technique for this project; we will assess the technical components of your work. Usually, there will be one or two people in a group who are not doing PatM and you should consider this when allocating group tasks. Note that you still need to make sure you make a substantive contribution to both THIS coursework and the coursework in PatM. You cannot just simply say “I’m not going to do anything technical and just do project management”. You might do well in PatM but you would fail THIS module!

### Can I work on my own? / Can I choose my own group?

No<sup>1</sup>. When you leave here and go into the real world, you will often be expected to work in teams, and you won't get to choose who is in your team. Consider this coursework training for this aspect of real life! You work in a group or you get zero. End of discussion.

### What happens if I work on my own?

That's not the assignment. If you handed in work you did on your own, that's a different assignment. You wouldn't be handing anything in for the published assignment, thus you'd get zero.

### What happens if I just decide to join another a different group of my own choosing and start doing work with them?

The assignment is to work in the assigned groups, so you wouldn't be doing the published assignment. You get no marks for making up your own assignment. Besides which, none of the calculations in the group you'd moonlighted for would have space to accommodate you, and the calculations for the group you're supposed to be in would show a zero contribution for you.

### How can we get 100%?

By giving 100%. Come to every lecture, every workshop, and contributing to your group. Participate every week both in your group and in scheduled classes, complete the stages described below, meet all of the requirements fully using good, well-documented code, and/or do some "bonus" work.

### How can we get 0%?

By not bothering. Don't turn up to class, don't come to the workshops. Give your group lots of excuses and noise but not much of actual substance. Then look on in horror when they give you a zero for the contribution factor resulting in a zero score for the coursework – assuming that you haven't already been fired for not turning up to "work"...

### I've been told I've been fired for not turning up to "work"! What does that mean?

You haven't been attending class and haven't been contributing to your team. As would happen in the workplace, you have been fired. In a workplace, your salary comes in the form of money. In our workplace, your salary comes in the form of marks. In both cases, being fired means you don't get paid any more. **TL;DR: you will get zero for this coursework.**

### Oh noes! I didn't believe you'd go through with this firing thing! What do I do now?

Be on the lookout for new job opportunities when they're advertised! There won't be many, though. For those who want a second chance, there'll be one. A third or a fourth chance? Nope. Welcome aboard the Failboat.



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<sup>1</sup> Unless you have an appropriate Statement of Support Needs (SOSN). If you don't know what a SOSN is, you don't have one!

### What help can we get?

Your main help forum is the weekly workshops for both this module and PatM. I expect to see EVERYONE at workshops. If you haven't been turning up to workshops, don't bother asking for help by email – we won't be turning up via email for people who don't turn up in person!

Only use code from a 3<sup>rd</sup> party if you document its use (with references) and you fully understand it!

## Business Requirements Outline

Berwyn Buses Hire Ltd is a leading provider of coach and minibus hire in West London. The company was founded in 1982 and it has continued with steady expansion over the past 30 years. The company operates a fleet of vehicles which are available for hire. The majority of the company's clients are local schools and colleges within West London that use the vehicles for school trips. However, vehicles can also be booked for private functions.

You work for a software company in a development team. Berwyn has commissioned your employer to write a web application to handle online bookings and other core functions, and your team has been assigned to implement the project.

The following requirements have been identified:

### **MUST HAVES**

1. Customers should be able to browse and search for vehicles based on the number of passengers they can accommodate, dates of availability, driving licence required (to drive the bus) and price, without logging in.
2. Customers can add one or more bookings to a basket, without logging in.
3. Customers can complete a booking. The system should lead the user through supplying the appropriate information required to fulfil their order, and finally inform them that their order has been received. (Handling actual payment e.g. integration with credit card APIs will be handled by another development team).
4. Administrators can add new and update existing vehicles

### **SHOULD HAVES**

5. There is some mechanism for customers to be notified when new vehicles are added (e.g. via an automatically updated entry on the front page)
6. The site uses AJAX to enhance interactivity. NB: AJAX involves both server and client side code! Just using a bit of Javascript to manipulate the page is NOT AJAX!
7. Customers can also book a driver to drive their bus (the MUST HAVE functionality assumes self-drive bookings)
8. Administrators can create promotions that automatically appear on the home page to customers, including expiry dates.

### **NON-FUNCTIONAL REQUIREMENTS:**

1. The database backend must be MySQL.
2. The web application must be written in PHP, CSS, HTML, Javascript and/or JQuery.
3. The PDO API for accessing your database backend in PHP must be used.
4. Third party frameworks (other than JQuery) may NOT be used. This includes third-party MVC and/or ORM frameworks (if you are doing things properly, you should be doing MVC yourself and PDO will handle ORM for you!)
5. Off-the-shelf content management systems may not be used.

Berwyn's CEO has indicated that they will only pay 40% of the fee if the non-functional requirements are not met (translation: your mark will be capped at 40%).

## What this actually means...

(...because this isn't *really* a corporate workplace, it's a university...)

In your groups, you will implement as many of the functions specified on the previous page as you can in accordance with the techniques and principles taught. Your marks will be based on how well your application works, both in terms of delivering functionality and the technical foundations on which it is built.

The appendix to this document breaks down how the group mark will be allocated. This will be informed by the Viva Scriptum. The individual mark will then be informed by the group's data regarding the individual members' contributions.

### What's a "Viva Scriptum"?

The final workshop of the year will involve a **viva scriptum**. The educational term *viva* actually comes from the Latin term *viva voce* which means "living voice". The word *viva* alone just means living – so what we'll be doing is *viva scriptum* – a "living document". (Ideally, each group would do a classic spoken viva, but there are just too many of you!)

On the day you will be expected to work in your group to collaboratively prepare a written document that showcases your work, that answers key questions about how it is formulated and the techniques that have been used. You will also demonstrate that you have fulfilled the functionality provided through a walkthrough of your application and provision of screenshots.

The written viva will not be assessed directly. It will *inform* the assessment of your work i.e. the marker will use your viva document to direct their evaluation of your work and ensure that they consider it in the correct light.

However, there is one instance where the viva document can directly influence your final mark. **If your viva document states something that is untrue, marks will be deducted!** This is to deter people from making grandiose claims for their work and trying to (unfairly!) bump up their marks. It is also to ensure that an appropriate level of understanding is present. If, for example, you claim (wrongly) that your work implements the MVC pattern with a full OO model, but you misunderstood what this means, it's fair that you should receive fewer marks than someone who *does* understand this terminology.

**Attendance at the viva is compulsory. Non-attendance or non-submission of the viva document will result in a zero mark regardless of other components that may have been submitted.**

### About the dual module thing

This assignment will also be used in Project and their Management. Those of you who are doing that module too will be assessed on how well you manage the project as a group. In this module, you'll be assessed on the actual software produced. Your marks will be derived from how well you've achieved the functionality request and the technical foundations of the application produced.

While there is a common coursework, it is important to realise that there are two distinct modules. You need to make sure that your individual contribution reflects the learning outcomes of BOTH modules. If you make no contribution to the project management you'll get zero in that module; if you make no technical contribution but do lots of the paperwork and organisation you'll get zero in

THIS module. In short: you can't hide from the difficult, technical, (shudder) programming! This is the School of Computer Science after all!

### Submission Procedure

There will be a submission box on Canvas and ONE PERSON ONLY from the group should submit the following:

- A ZIP file containing:
  - A Word document which includes:
    - A URL at which someone could access a fully operational, running version of your application.
    - Any passwords/logins that would be needed for someone to adequately test all the functions of your site.
    - (optional) Any other information you think someone might need to adequately test your site
  - A SQL dump of your final database
  - All the code – PHP, CSS, HTML, Javascript – that comprises your application
- **IF ANY OF THESE ITEMS (other than the optional one) ARE NOT HANDED IN, WE WILL CONSTRUE THIS AS A NON-SUBMISSION AND THE FRAGMENTS SUBMITTED WILL NOT BE MARKED.**

There will also be additional artefacts submitted on the day of the Viva Scriptum, which you will find out about at the time.

## Group Project Procedures, Rules and Regulations

This project will be undertaken using the same rules and principles that would apply in a real-world, industrial software development team. We consider the university to be the workplace and we consider scheduled lectures and workshops to be scheduled workplace meetings that are MANDATORY for you to attend.

In an industrial workplace, employees are paid in money. In our workplace, you are paid in marks. In both workplaces, if you persistently fail to turn up to work and/or make no contribution to your team, you will be fired. Once you have been fired, you will not receive a salary – i.e. in this case you will get zero for this coursework!

So, here are the rules:

- It is expected (and required under university regulations) that you attend every lecture, every workshop, and contribute. Oh, and tapping in with your ID card does not contribute “attendance” in my book. Being present for the whole session and contributing constitutes attendance.
- A warning system will operate for non-attendance at workshops:
  - First missed workshop: Warning by email.
  - Second missed workshop: Warning by email, and requirement to see me at the next workshop
  - Third missed workshop: You will be fired from your group and receive zero for the coursework.
- It is advised that you use formal, documented forms of communication such as email rather than transient, informal methods like text messaging, WhatsApp etc. Email is recorded and legally admissible as evidence.
- In the event of any disputes within your group, I will want to see documentation from your meetings. So, when you meet up (whether in a class setting or independently of your scheduled workshops) make sure you document when, who and the subjects discussed.
- In the event that there is a problem with one or more individuals in your group, or an individual has a problem with the rest of the group:
  - In the first instance, you should try to discuss and deal with the problem in your group.
  - If you cannot resolve the problem through discussion within your group, a group member should email me notifying me of the problem. You MUST notify the other member(s) of the group that you are escalating the issue to me.
  - The group will be invited to a joint meeting with me in my office to discuss the issue. I will:
    - Ask about your discussions prior to escalating your issues to me
    - Ask to see the notes from your weekly meetings
    - Offer suggestions on how to resolve the issue
    - Potentially, give mandatory tasks to group members which MUST be performed in order to break any deadlock
    - Potentially, reallocate group members to different groups
    - In extreme cases, I may choose to deduct marks from group members where the situation could have been avoided. IT IS THUS IN YOUR INTEREST TO TRY TO MAKE YOUR GROUP WORK!

I do NOT intend to reallocate group members except where the group dynamic has broken down to such an extent that it is irredeemable. If I end up having to reallocate group members, I will re-

allocate according to the effort in evidence. An individual who has been putting in the effort but chafing against team member(s) whose contribution has been lacking will be placed with another high-performing group. An individual who has not been putting in the effort will be placed with, shall we say, a “weaker” group.

The project is worth 25% of your final module grade. As noted previously, you will be asked to rate as a group how much effort each member put into the project. Usually we’ll take your word for it but the module team reserves the right to determine their own values for team members’ effort, based on their assessment of group participation in workshop sessions and other factors. Each group will be given a mark for the project as a whole, and then individual marks will be allocated based on your contribution and/or effort.

**NB:** In the event that a group member has made *no discernible contribution* to the group’s work he/she will receive zero marks, irrespective of what any calculations might say!

**You will not be able to be a passenger on this coursework. On lots of group exercises around the university, it is possible to get marks by not really doing anything, or by making lots of noise but not actually producing or contributing anything of substance. THIS WILL NOT STAND HERE. If you don’t intend to do your best and don’t intend to do any work, just save yourself the bother and tell everyone now. That way I can just give you the zero now, and you can save yourself the effort of all the excuses and protestations later ☹️**

**THERE WILL BE NO FREE RIDES ON MY WATCH.**