# Analysis

## Background to/identification of problem

As a trainee ski instructor, I have a vested interest in the dry ski slope at Rossendale.

Following the closure by the Council in April 2011, a “Social Enterprise” has been formed and it’s 4 four directors hope to provide a viable service and establish a successful business .

The Mission Statement is as follows- “To create a winter sports centre of excellence whilst promoting community participation in recreation and sport.

The four directors have each contributed a sum of their own money and so income and profit are essential, but the slope and the facilities are quite run down. The Enterprise opened in Summer 2011 and is run by volunteers who give their time and energy for free, but the business requires a high level of users in order to generate the money to plan for improvements and developments.

There is already a static website in place which provides information ,however, dynamic pages are now a requirement if the business is to progress and profits increase.

As part of their “Action Plan”, the directors wish to review the website in order to include a “Client Booking System” and a database, which they feel will have a beneficial effect on business.

It is these elements which I intend to provide as part of my A level Computing coursework.

The directors also hope for increased client interaction with the website, with information gathered to assist communication. Newsletters and personal messages will be easier to send and data will be more readily available for analysis of the current user profile. Instructors will post their profiles and clients will be able to book classes and private tuition using a calendar of availability. They have also had a new logo designed, which they want to be placed onto the site.

(See interview with Dave Fuller-Director)

## Description of the current system

Interview with Dave Fuller-Director

**Was this current website in place when you established the Social Enterprise?**

No, we put this one in place when we began in 2011, but we are now badly in need of it being updated

**This is one of your main marketing tools, how else do you attract business and advertise your services?**

We have put in place clear signage ,had a new logo designed so we can develop our own corporate identity. We advertise events locally on banners, have a link to the local website for the Rossendale valley. We do use the local newspaper too, but they charge a lot for copy. We have a series of leaflets produced and of course our website brings in a lot of business.

**What do you think is the most effective of your marketing methods?**

We rely on word of mouth a lot as some of our clients came here as children years ago and are now bringing their grandchildren along .Skiers meet on holiday and talk of this as one of the best dry ski

facilities in the country. However, there is no getting away from the fact that pretty much everybody Google’s to find what they need now and so we have to be “out there” with a website which captures as much business as it possibly can.

**Do you think there are opportunities to increase client usage with the improvements to the website? And thus increase revenue for the club?**

We have continued with some of the booking systems but have noticed problems and missed business because we do not utilise technology well at present, our volunteer staff structure does not always enable us to have someone at the phone so we miss business on occasions,

**Is it fair to say that your current system is paper driven rather than electronic?**

Yes- we write things down on sheets and often use post it notes, the information gets transferred at some point but we are all a bit frustrated with the system we currently have in place.

**How would you rate your current booking system?**

It is clearly antiquated, our management meetings often bring this up as an area which needs improvement. I am sure if bookings could be made through the website this would bring in a lot more business, and our office staff would be less stretched.

**What would you want the improved system to look like?**

Clear and easy to use

Linked to our office booking system

Increased user interaction online

Client booking system online

System for booking private lessons as well as group courses

Feedback facility for users of the site,

Data collection from members and new clients

Database of members

**Is there a budgetary implication for improvements?**

Our original website cost quite a lot, but I think the facility will allow us to update as we wish, as a social enterprise we do not currently make r however any future money will be reinvested into development of the site and service we provide.

**What level of skill is available among your workforce which would enable the system to be used efficiently?**

We have 4 directors and 5 volunteers who cover the office and admin- they insure inquiries are addressed, and are all able to use the current basic system we have at the moment, each one of them uses a computer at home and work, and is quite competent with their abilities. I feel any development will be quickly adopted. As long as demonstrations are given prior to use by you.

**Are there any concerns problems or constraints?**

Change can be received differently by individuals, and as director I would ensure each staff member is on board and comfortable, I have people on all sides voicing their opinion about an updated website so I think it will be well received by all.

**Are there any security issues?**

Obviously the gathering of personal information will require data protection procedures to be reviewed, we already have a policy in place to cover this- similarly, the freedom of information act policies will need review also., all of our computers are password protected, information is regularly backed up, data pens encrypted and stored in an offsite safe. Hardware is securely locked as is the building with alarms.

all instructors are DBS checked, and health and safety/safeguarding policies are in place and regularly reviewed as they also relate to the use of on-site computers and access to personal information of clients.

**Any further comments?**

If we can assist in any way please let us know as we are eagerly awaiting this project’s completion. And good luck.

The current website is very basic. It is written all in ”html”, with minimal interaction for the user and few pages, none of which are complex. Currently the booking system at the club is very basic. Bookings are taken and messages received are written down using a simple system, - most things are written on paper with little organisation, some things are on spread sheets, the only way to book is via email, phoning up or coming in, which is why I think creating a booking system on the site will not only help with organisation, it will also make their technology more up to date.

Course requests are put on a spread sheet in columns underneath each course title. The only way to book is via email, phoning up or visiting, both of which need to be at a time when the office is open.

**Private bookings/lessons**

When a private booking is requested, office staff will ask the name and contact number of the client, and write it in a printed table showing hourly slots each day for each instructor, they occasionally also write in the skill level of the client to help the instructor.

**Group bookings**

If a group booking is made, the staff will write the name of the group and the instructor on the table alongside the group skill level, then on an externally attached sheet they will write all of the names of the clients in this group.

**What is done with this table?**

On the appropriate date the table is put up on a notice board so instructors can look at it and see which class/session they are teaching and who they will be instructing. Ski instructors have expressed a concern regarding the lack of prior information as this has implications for planning, in particular for addressing individual needs.

The directors believe that by creating a booking system on the website this will not only help with organisation and efficiency, it will also bring their systems up to date. There are times when no-one is able to answer the phone which results in business being lost. In addition, as the staff is made up of volunteers and most have jobs and families, it is often two or three days before e-mails are responded to, with again, a potential loss of business.

There is currently a very limited system to book future courses, the centre only decides what sort of course to run based on what customers request, often courses are created but get cancelled due to lack of people having booked on. For courses in the future, they run the same system; they get out the sheet of courses and write the date on and then place it back into a folder; this is very disorganised, and often booking sheets are not placed in the right part so courses are unknown of and then the sheet is found at a later date, this is very bad for the business and often loses them customers, which is why this upgrade is so necessary. My intentions are to allow customers to book as far in advance as two years and allow the centre to view this information clearly.

## Identification of the prospective user(s)

The client-When accessing the website to find out information, they will be able to book directly and receive confirmation at the same time.

The volunteers-As the Enterprise relies heavily on good will, the facility which gathers information from willing volunteers will provide a growing bank of recruits.

Ski Instructors-They will be able to tap into information regarding the individuals and groups, special needs, prior experience, levels achieved. Determine which courses are most popular, arrange timetables to fit round private tuition, increase or decrease courses offered as appropriate.

Directors-They will be able to ensure that booking can be made at all times regardless of staff availability. This will ensure business is not lost. Staff may be more effectively deployed at peak times as a result. It will provide data for analysis as monitoring of “hits”, preferred classes and popular times, profiles of user groups and individuals, gaps in service. A facility for user feedback will inform directors of client satisfaction, highlight concerns as well as receiving positive acclaim. New business will be constantly generated through the availability of clear and accurate information for prospective clients.

## Identification of user needs and acceptable limitations

A colleague at the ski slope has commented saying they want more user interaction, a course booking system, member details input for emails, instructor profiles, newsletter blasts and an area new users to input their data to be added to the system to receive emails, and advertisements for events, and places users can give feedback to the centre on what they have done for other users to see.

The revisions to the website will improve the booking system which office staff will access to deal with enquiries made by phone, e-mail or in person.

This will be the same system as that accessed by clients making applications on line.

The Data base will be generated from information gathered at the point of enquiry, so this too will be held on the present system.

As such, the hardware and software requirements are already in place as the office has 2 PC’s. All voluntary office staff are able to use spread sheets and handle data as they are computer literate, using PC’s at home and at work. The Directors feel that no specific training will be needed apart from a basic demonstration.

There are 2 laser printers available and staff are aware of the need to” back up” systems daily.

There are implications for “Data Protection” and “Freedom of Information” but policies and procedures are already in place and these will be reviewed as a matter of course.

## Data source(s) and destination(s)

Data will be stored on a server at the centre and installed by me. Sources of data to be placed on the site will be in the centres books which I will convert to electronic databases and also we may be able to trial the site with some staff.

CURRENT SYSTEM

|  |  |  |
| --- | --- | --- |
| **Source of data** | **Method of data collection** | **Data items** |
| Customer | Phone call, email or spoken inquiry at office to book onto course | Customer name, contact number/email, paid, skill level, weeks. |
| administrator | Retrieving date and time of course and instructor who is teaching | Date, time, instructor |
| instructor | Retrieving what time the instructor is available to teach | Time, date |

|  |  |  |
| --- | --- | --- |
| **Destination of data** | **Method of data output** | **Data items** |
| Customer | Printed course booking confirmation | Course date, time and instructor, |
| instructor | List of the times and dates they will be teaching presented to them | Date, time, course name, level |
| Office staff | Course list for the day | Times, levels, instructors, week , coursename |

## Data volumes

I think the average amount of users per day will be around 50 customers and will be checked by the two office staff per day to check bookings, there are apparently around 500 records of clients. There are around 6 instructors that are regular and others such as myself which step in when necessary. There are around 50 lesson slots used per week but at peak times such as the Saturday and Wednesday kids club, there is around 6 different lessons on-going at once, this is when the volunteer instructors are called in.

## Analysis Data Dictionary

Group course

This information is written onto a sheet containing the information of each individual member on the stated course (stated at top of sheet)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Purpose | Field Type | Field Size | Example Data |
| kids/adults | Determines whether session is for kids or adults | String | Kids/adults | kids |
| Skill level | Stores skill level of course members | string | Beginner/ improver | improver |
| dates | Stores the dates of a course | String | unlimited | 10,17,24,24 +31 Dec |
| Day | Day of which course is on | String | 8 | Tuesday |
| Time | Time which course is on | Time | 7 | 8.00pm |
| Instructor | Name of instructor leading course | String | unlimited | Dave |
| name | Name of member on course | String | unlimited | Alice |
| Contact number/email | Stores either a contact number or email address of user | String | unlimited | 01706242552 |
| Weeks 1/2/3/4 | Stores the weeks each user has attended | Check box | 1 | 1/2/ |
| paid | If user has paid or not/ amount paid | String | 4 | yes |
| activity | Activity user is doing | String | Ski/board | ski |

Ski lesson schedule/Board Lesson schedule

This information is written on a sheet that shows all of the courses being run for a particular activity in the set day, for example it would show all skiing courses being run during a specific day.

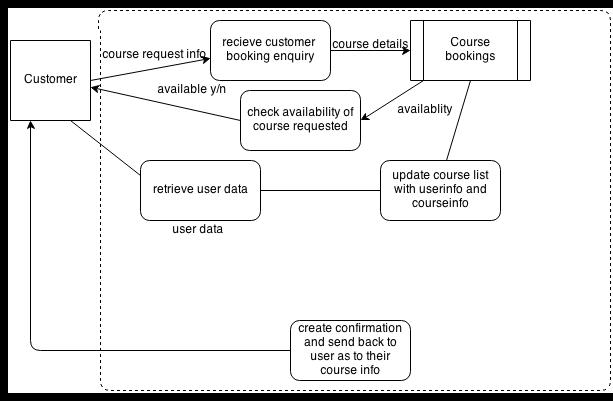
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Purpose | Field Type | Field Size | Example Data |
| Day | Day of which course is on | string | 8 | Tuesday |
| date | Stores the date of a course | string | unlimited | 10 Dec |
| lesson | Stores title of lesson being run | String | 15 | Ski taster |
| Time | Time which course is on | time | 7 | 8.00pm |
| Instructor | Name of instructor leading course | string | unlimited | Dave |
| name | Name of member on course | string | unlimited | Alice |
| Contact number | Stores contact number of user | string | unlimited | 01706242552 |
| paid | If user has paid or not/ amount paid | string | 4 | yes |

Main planning sheet

This information is stored on a sheet with a table on it with squares separated by 1 hour slots, this serves as a main overview for all course being run throughout the day.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Field Purpose | Field Type | Field Size | Example Data |
| Day | Day of which course is on | string | 8 | Tuesday |
| date | Stores the date of a course | string | unlimited | 10 Dec |
| absences | Shows absent instructors | String | unlimited | Dave, Toby |
| Times | Times which course is on at 1hr intervals | time | 7 | 8.00pm |
| location | Shows the location of the lesson taking place  N= nursery slope, I= fun park, M=main slope | string | 1 | n |
| Number on course | Displays number of people on course in a circle | integer | 2 | 11 |
| < > tags | If tags are used shows a group course and the week they are on from the set |  |  |  |
| Activity | Shows activity users are on (tubing/ski/board) | String | 6 | tubing |

## Data flow diagrams (DFDs) (existing and proposed systems)



## Numbered general and specific objectives of the projects

**Input objectives**

1. **If user has previously registered their details with the server then they need to enter their userid and password to logon.**

* User id- text
* Password-password

1. **If the user has not previously registered, the user will need to be able register on the site with their details in order to be given a log on and gain access. They will enter the following data:**

* First name- text
* Surname-text
* Address line 1-text
* Address line 2-text
* Postcode-text
* Email address-text
* Date of birth-date
* Contact number-text
* Emergency contact number-text
* Password-password

1. **When booking a course, the user will enter a selection of this data dependant on the course type:**
2. For party booking courses:

* The user must choose the Activity they wish to do via a radio button, this is validated to ensure that a value is selected.
* The user must choose the Skill level they are at of the chosen activity via a radio/list box; this is validated to ensure that a value is selected.
* The user must choose the Amount of adults via a numbox; this is validated to ensure that a value is selected. And that it is not negative
* The user must choose the Amount of infants via a numbox; this is validated to ensure that a value is selected. And that it is not negative
* The user must choose the Amount of children via a numbox; this is validated to ensure that a value is selected. And that it is not negative
* The user must choose the Amount of teenagers via a numbox; this is validated to ensure that a value is selected. And that it is not negative
* Furthermore there is validation to check there is at least one person in total on the course.
* The user must choose the Time and date of the course they wish to book via a date/time input, which must be a future date and within the opening times of the centre.
* The user must choose the Course duration (1hr/2hrs) via a radio button.

1. For private courses:

* The user must choose the Activity they wish to do via a radio button, this is validated to ensure that a value is selected.
* The user must choose the Skill level they are at of the chosen activity via a radio/list box; this is validated to ensure that a value is selected.
* The user will then choose an age range of the client whom will be attending; this is validated to ensure that a value is selected.
* The user must choose the Time and date of the course they wish to book via a date/time input, which must be a future date and within the opening times of the centre.
* The user must choose the Course duration (1hr/2hrs) via a radio button.

1. For group courses:

* The user will be presented with an on screen list of courses that have not yet occurred and are not full; the user will then input the course id.

All of the above fields will be validated to make sure no user input fields are empty, there will also be validation on the email addresses to make sure they are real email addresses, and preventions for options that cannot combine ( Eg you cannot have a skill level if you are doing tubing and also preventing the user from doing negative amounts of users booking on) There is also validation to ensure dates and times correspond to the centre opening times and also a date given is after the current date. There will also be validation through the SQL script to ensure courses are not double booked in the times available etc.

1. **Administrators:** 
   1. If user has previously registered their details with the server then they need to enter their userid and password to logon.
   * User id- text
   * Password-password
   1. add new administrators
   * The administrator will need to input the new administrators name and password,
   1. Update instructors for the week ahead which will be running the course.
   * The administrator will need to input all of the instructors assigned to which day they will be working and activity they teach into a form, which will then be stored.
   1. add search criteria to get the results of a query
   * For example the admin could enter a client’s user id to search for their details, or an instructors name to search for all courses they are running etc.
   1. Input various data in order to perform a removal task from the database
   * For example the admin could enter a user’s id to remove their details from a course, or the course number of a group course to remove the entire course. Etc
   1. Input data of a group course so users can book onto it

**output objectives**

1. **Outputs to clients**
   1. When clients first register on the web site their user id will be displayed.
   2. When a user has registered on the system, they will at some point want to book onto a course, on doing this, they will be given a course number of that individual course upon booking,
   3. Once submitted, they will be given course confirmation that they have successfully booked the course
   4. In the case of a group course, they will be shown a table with a list of available group courses that are yet to be run.
2. **Outputs to office staff**
   1. The output objectives with regards to staff members is to clearly show whoever it may concern, the courses or information they wish to find
   2. Administrators will be able to search and display the results of search for:
      * 1. a customer’s details
        2. specific courses by activity
        3. specific courses between two set dates which they can choose
        4. courses being run by a specific instructor
        5. search all bookings made by one customer
        6. confirmation of removal of customer details from the database
        7. confirmation of remove customers from a group course
        8. confirmation of remove customers from a party course
        9. confirmation of remove a group course
        10. confirmation of remove private bookings by customers
        11. course id for storing new group courses

**Processing objectives**

The client must be able to:

1. Send data of courses they want to book onto to the database
2. Be able to update their user information
3. Be able to clearly see the id of the course they are booking onto for reference purposes
4. Be able to log on securely

Administrators must be able to:

1. Securely log on to the system
2. Search for courses by activity
3. Search for courses by instructor
4. Search for courses by date they occur on
5. Search for the bookings a customer has made
6. Search a customers details
7. Remove customer details from the system
8. Remove group courses from the system
9. Remove customers that have booked onto a group course
10. Remove party and private customers
11. Add new admins and group courses to the system
12. Update instructors for the week ahead

**Storage objectives** - all of the data which is added will be stored on a database to allow the office staff to retrieve information of users or the amount of users on a course when it is necessary to do so.

## Realistic appraisal of the feasibility of potential solutions

C# form

One possible way of solving the problem would be to create a form that users can load onto their computers and admin staff can use on their computers in the office, this is a possible idea often used in many businesses booking systems and is often very simple to design, however could have very complicated issues with distributing to users, and explaining use and install of the form to users.

Pascal

A possible option to create my system would be using Delphi, allowing me to make a form; I would be able to save everything in files, write customer information to files, and even use a database behind this, this would be very simple to make and in this case relatively easy for the user to learn, however this simplicity will not allow me to branch out the system into an online booking system where customers could book over the web, making this solution fairly basic. I feel I have had a fair knowledge in Pascal, after coding with it for 6 months during my as levels, this would help sped things along and get the work done quickly. Overall in my opinion I feel this would not be wise as the program would only be used on one computer and would be very complex to link two machines together to do this without the risk of data collision.

PHP/MySQL

I could use PHP as the coding to solve my problem, as it is often said to be a very easy code to learn, particularly for beginners, this would help to cut down the time taken to actually create the project, it is also a server side scripting language, which would mean it could tie in perfectly with the database I intend on using which could be helpful. MySQL is easily integrated with PHP, and it is open source, as the centre is quite small and is very low on cash, it may not be able to afford Microsoft products, in which case this option is open source which would be the cheaper option for both hosting and using.

ASP, javascript, html, access database and SQL

I think a good method of solving the problem would be through a web based user interface, on a website, with asp and sql connecting to an access database and javascript being used for validation, I have extensive knowledge in sql, javascript and html, so this would be a good idea, furthermore I have books on all of these which I can easily use as references to help me learn and get ideas on what to include, use of a web page would mean users with internet access could visit the pages to book etc. and thus will not be required to download anything , while at the same time, validation would be very simple to do, and form information can be simply written to the database stored on the server via server side scripting(SQL). This method is also relatively easier to fix and add on to in the near future, and combining this with the fact another member of staff who made the original html pages for the site, will feel much more secure with this as they can relate to the solution and possibly fix issues themselves should they arrive.

## Justification of chosen solution

Given the current system is very limited and is mainly paper based, many things are possible to go wrong, for example paperwork can quite easily get messy and use up a lot of office space. I plan to keep the backbone of the organisation, but aid by making it all computerised and more efficient and easy to use, as well as finding data. I also plan to intertwine this with a site, which has various databases linked to it on the server, to give almost live updates as to things like the availability of a course and the amount of people booked on. This will greatly help speed of the booking process helping reduce the amounts of complaints in the centre, particularly those in relation to queues and long waiting times. I think this is not only the best but the only viable opportunity to really bring the clubs booking system into the 21th century , computerising the entire system would allow the office staff much more time for other work and similarly may even allow the business as a whole to increase customs due to being able to cope with more people at any one time, and maybe even train one of the office staff to be an instructor too so that they can run as much as they possibly can, the new booking system will play a vital role in the modernization and organisation of this business.

I think the best solving the problem would be through a web based user interface, on a website, with asp and sql connecting to an access database and javascript being used for validation, as discussed above I have extensive knowledge in sql, javascript and html, so this would be a good idea, furthermore I have books on all of these which I can easily use as references to help me learn and get ideas on what to include, use of a web page would mean users with internet access could visit the pages to book etc. thus will not be required to download anything , while at the same time, validation would be very simple to do, and form information can be simply written to the database stored on the server via server side scripting(SQL). This method is also relatively easier to fix and add on to in the near future, and combining this with the fact another member of staff who made the original html pages for the site, will feel much more secure with this as they can relate to the solution and possibly fix issues themselves should they arrive. I think this will overall be the best method of delivering the final product to the user.