

An Investigation into the Available Software Solutions for the Management of Documentation and Recordings in the Childcare Profession

Key Dates in the History of Childcare

Friedrich Fröebel opens his first kindergarten where children are not schooled but freely developed [1].

1840

Fröebel's kindergarten

1870

The Education Act 1870

The inaugural piece of legislation on national education in the UK [2].

Women play an integral role in bringing stability to a country at war.

1939

World War Two

1944

The Education Act 1944

Local authorities are required to provide nursery schools to children under five years [3].

Between 2012 and 2018 available childcare places in Wales grow from 76,000 to 84,000 [4].

2018

Childcare worth £1.2 billion

Introduction

In the present day, where computer technology and the internet drives businesses, the challenge to modernise is one faced in all industries. Following decades of milestone events and cultural shift, the traditional family dynamic has changed resulting in an increased demand for professional childcare as more parents pursue employment. Although the legal requirement to create, maintain and present recordings exists, at present there appears to be no industry standard method of doing so.

This project has identified the need for a bespoke solution that meets the needs of professional childcare settings giving them greater ownership of the data they record.

Customer

Founded in 2007, Little Flowers is a registered childminding business based in Swansea, Wales. Little Flowers are well-equipped to entertain, educate and care for children in a safe environment.

Little Flowers offer:

- A structured learning curriculum
- Indoor and outdoor activities
- Promotion of healthy eating
- Multilingual learning environment



Aims and Objectives

The overarching aim of this project was to develop a solution that increased Little Flowers' business efficiency, diminished their dependence on physical resources and gave staff the ability to create, maintain and distribute recordings and documents while also allowing parents the opportunity to easily access information.

- Create an attractive and professional website displaying appropriate information about Little Flowers.
- Develop a web app that allows staff to create and maintain recordings such as daily diaries, accident records and invoices.
- Develop a web app that allows parents to retrieve stored information relating to them and their children.



Design

To ensure that the bespoke web site and web application were suitable and met the requirements of Little Flowers a structured approach to design has taken place. This phase of the project utilised tested, proven and well-established design methods including Mood Boards, Wireframes, Sitemaps, Content Plans and following the Database Lifecycle.

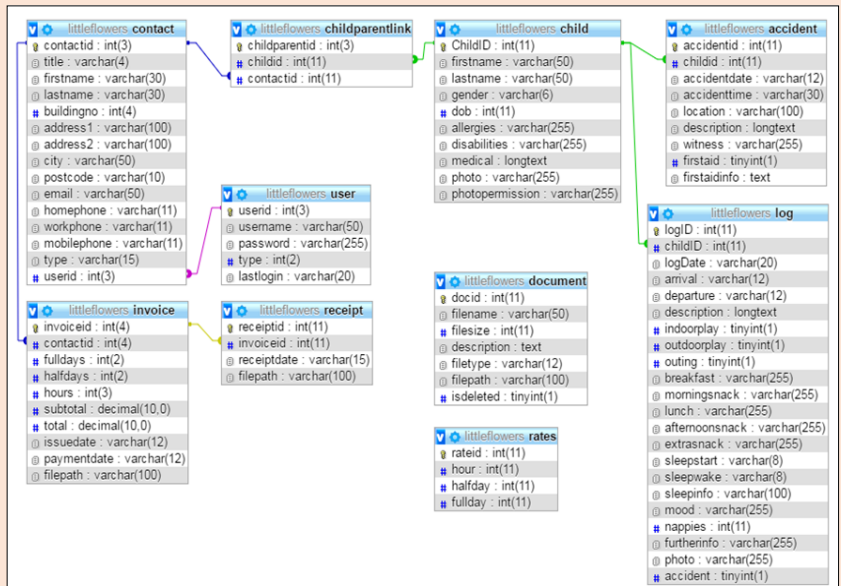
Mood Board



Wireframes



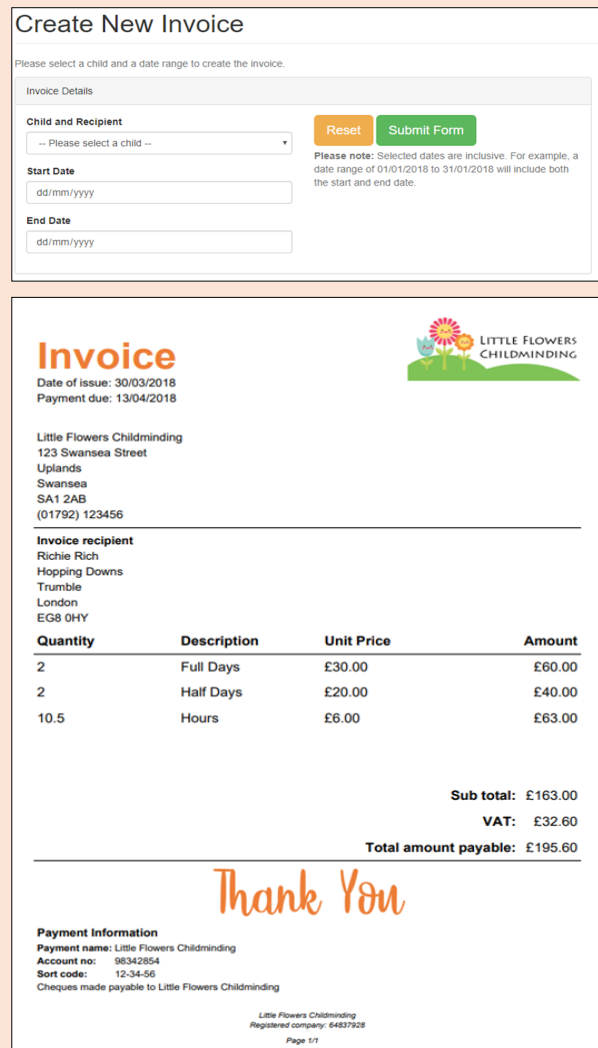
Database Modelling



Development

The bespoke web application solution has been developed in the Atom integrated development environment and utilises modern web technologies and client-side and server-side programming languages. The web application is data-driven by a MySQL database and was developed using an XAMPP offline test environment.

Invoice Creation Feature



```
while ($row = $sql->fetch_assoc()){
    $arrival[] = strtotime($row['logdate']);
    $departure[] = strtotime($row['logdate']);
}

// Calculating appropriate cost according to time if:
if($i=1){
    $arrivallength = count($arrival);
    $departurelength = count($departure);
    for ($i=0; $i<$arrivallength; $i++){
        $timediff[$i] = round(abs($departure[$i] - $arrival[$i]) / 3600, 2);
    }
    $hours=0;
    $halfdays=0;
    $fulldays=0;
    for ($i=0; $i<count($timediff); $i++){
        if($timediff[$i]>8){
            $hours += $timediff[$i] - 8;
            $fulldays += 1;
        } elseif ($timediff[$i]>=8){
            $fulldays += 1;
        } elseif ($timediff[$i]>4){
            $hours += $timediff[$i] - 4;
            $halfdays += 1;
        } else {
            $hours += $timediff[$i];
        }
    }
}
```

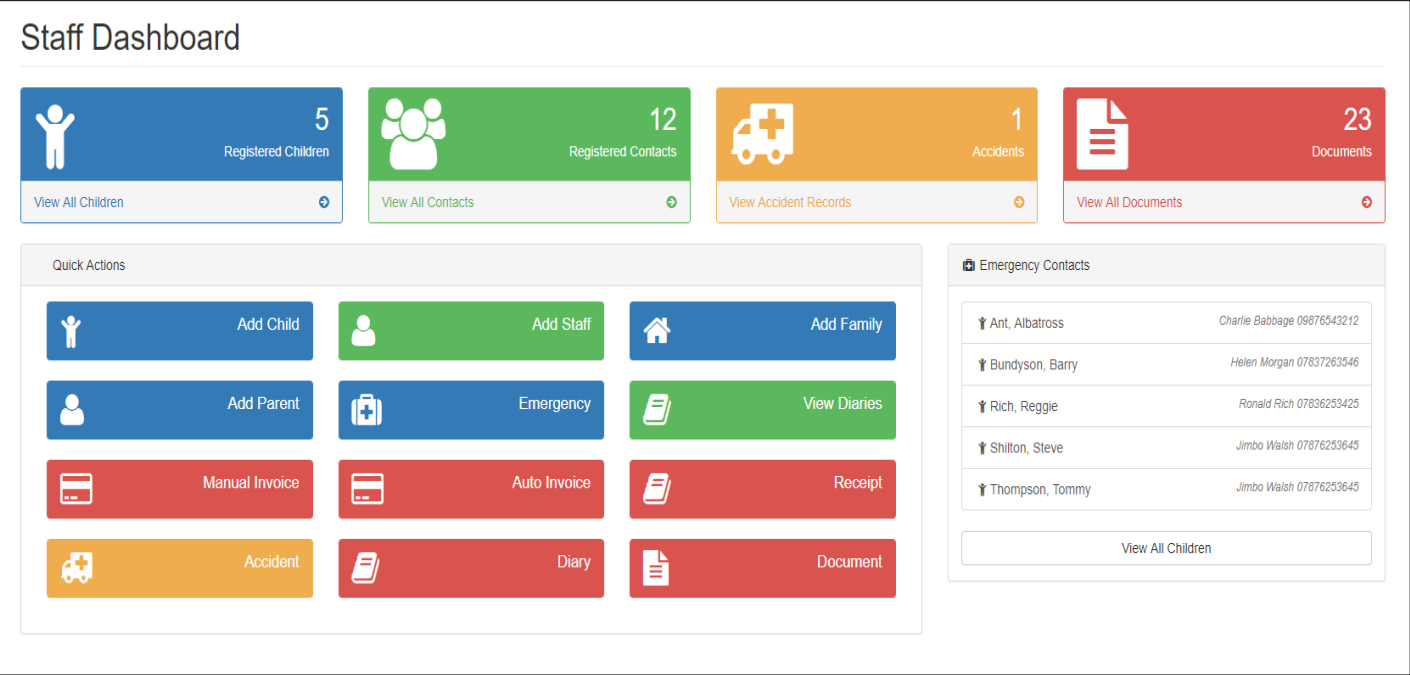


Results

By following a set of well-established research, design and development methodologies the bespoke web application produced for Little Flowers has successfully satisfied all of the identified requirements and success criteria. Following a successful implementation Little Flowers participated in User Acceptance Testing where results indicated their high level of satisfaction with the solution.

Although the solution has been a success there is still scope for future improvements and developments including further security testing, responsive design developments and the inclusion of new features and functionality.

Participant	Device	Age	Navigation (Q1)	Design (Q2)	Parent functionality (Q3)	Staff functionality (Q4)	Responsive to device (Q5)
Sarah	Microsoft Surface	32	5	4	5	4	4
James	Apple iPad	34	5	4	4	4	3
Average			5	4	4.5	4	3.5



Conclusion

- The project was guided by established methodologies including the Research Onion, Feature Driven Design and User Acceptance Testing.
- The final solution wholly satisfied the success criteria and was deemed to be a highly successful feature-rich solution by Little Flowers.
- Future consideration must be given to the responsive design, security and additional features of the web application.

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References

- Ornstein A, Levine D, Gutek G, Vocke D. Foundations of education. Cengage Learning, Inc.; [cited 30 April 2018].
- The 1870 Education Act [Internet]. UK Parliament. [cited 30 April 2018]. Available from: <https://www.parliament.uk/about/living-heritage/transformingsociety/livinglearning/school/overview/1870educationact/>
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