

# Programmed Solution to a Problem - Investigation

Porth-y-waen Silver Band Management System



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## Contents

<b>Investigation.....</b>	<b>2</b>
Analysing the current system.....	2
Investigating the current system methods.....	3
Questionnaire.....	3
Observation.....	9
Interviews.....	11
Conductor.....	11
Secretary.....	11
Existing solutions to similar problems.....	12
Zenefits.....	12
Bookedin.....	14
Follett Destiny Library Manager.....	16
Stakeholders.....	18
Conductors.....	18
Band members and parents.....	20
Librarian.....	20
Instrument steward.....	20
Events coordinator.....	21
Data collected for input and processing.....	22
Band members.....	22
Customers.....	22
Music Library.....	22
Instrument record.....	23
Events.....	23
Outputs of the current system.....	24
Limitations of the current system.....	25
Project specification.....	26
Justification of the methods to be used.....	27
Success criteria and objectives.....	28

## Investigation

The purpose of this project is to create an efficient management system for Porth-y-waen Silver Band that allows them to record band members, instruments, and music, and manage event bookings. To be successful in this project, I will carry out investigations to find what needs to be included in the system I create to improve how the band is run.

### Analysing the current system

The system is currently mainly paper-based. All players and their details are recorded on paper and players have to fill out a contact and permissions form when they join the band. The conductors of each group keep a paper register of attendance at rehearsals. The music that the band owns is stored on paper with few details about the music. The copies of music are stored in alphabetical order but have no easy way of organising or sorting the record or library. The spreadsheet storing the instruments is fairly detailed as it contains all relevant information about the instruments, including name, serial number and location. Event bookings are done using the band website, which notifies the relevant committee member who will manually process and reply to the request. Any searching or sorting of players or music is done manually.

The band has an intuitive, mainly paper-based system. They collect data about their players, such as contact details and permissions. They have a record of the players in each of the groups and member attendance at rehearsals. They record the pieces of music and instruments that they have stored. They have a general form on the website for bookings and to join the band. This data must be collected in the new system as it is a key element of the band. However, the website form works well so there may be little need for event booking in the new system.

The current system has its strengths and weaknesses. A paper register is practical as it is quick and easy to fill in during rehearsals, where access to a computer is currently limited. It is also easier to gather details about players using a paper form as some of the band players are not good with technology or do not have access at home, so would be unable to complete an emailed form. The band was established in the 1930s when a digital system was not available and it has not been upgraded on a large scale since. It is very difficult to search and sort music, players and instruments with the current system as it must be done manually. When an event is booked, players are told in rehearsals by the conductor of the events coordinator, which can be time-consuming and details could be missed. Availability for events is also recorded during rehearsals.

Committee members have regular meetings to discuss how the band is managed, which band members are not involved in. The committee members responsible for specific areas of band management may decide to tell the rest of the committee about an issue, but unless it is relevant to the band members, they are not told.

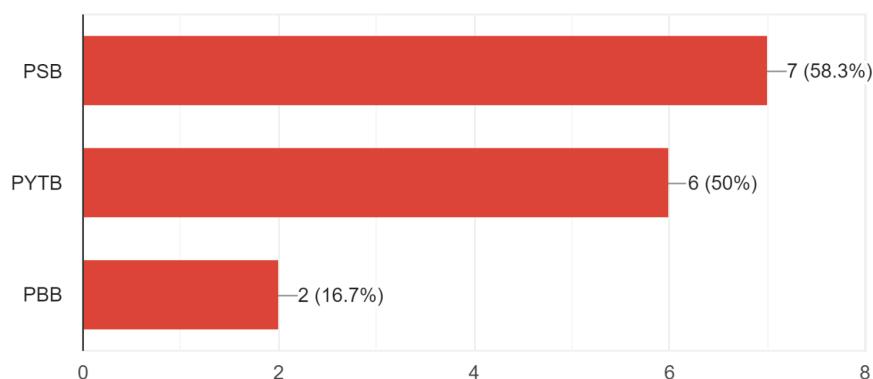
There is little data security in the current system. If someone knows where to find the register or the store of members' details, they can access their confidential information. Any existing digital areas do not have a separate login and are not backed up on another computer, so data could be lost. Only the people who create the documents have access to them, which can make it difficult for another person to help with an aspect of the band's management.

## Investigating the current system methods

To gather information about the current system, I will carry out many methods of investigation to ensure I have a full understanding of how the band is currently managed.

### Questionnaire

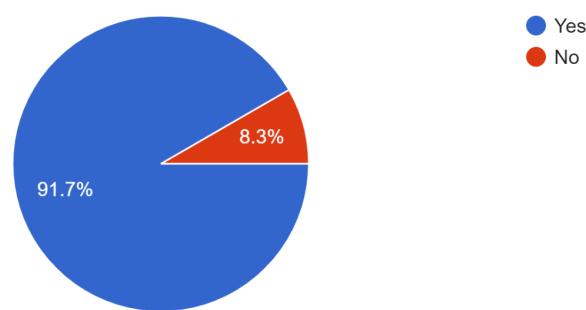
I produced a questionnaire and distributed it to band members to collect as much information as possible about how they find the event booking process and how data is collected about them.



The questionnaire was completed by 12 players from 3 different bands - Porthwaen Silver Band (PSB), Porthwaen Youth and Training Band (PYTB) and Porthwaen Beginners Band (PBB). Some respondents were members of more than one band, so may have different experiences with event management and how their details are collected.

Have you taken part in an event with the band?

12 responses



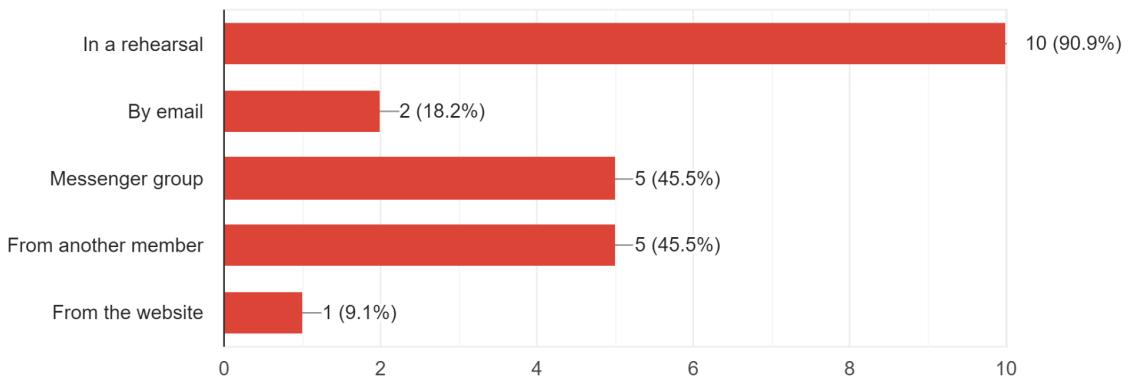
Almost 92% of the respondents have taken part in an event, and the respondent that had not is a member of PBB. This shows that the more advanced bands get more events, so the current system is designed for older members.

## Programmed Solution to a Problem - Investigation

Nia Hawkins: 7183 - The Maelor School: 68146

How were you told about the event?

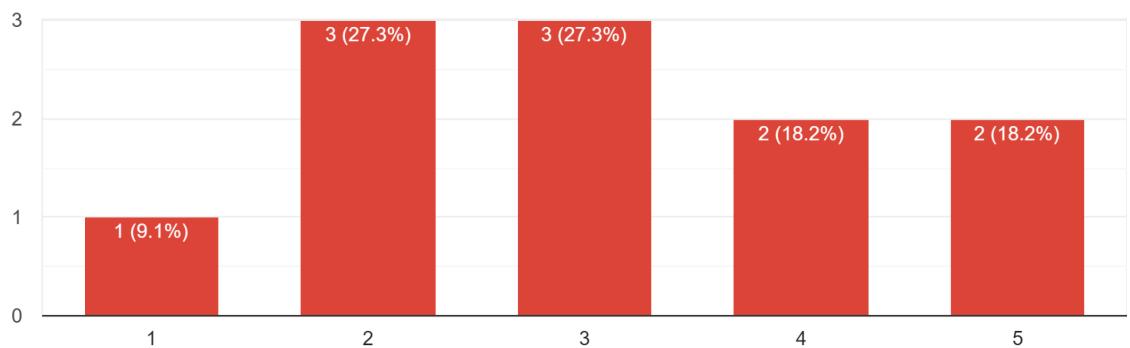
11 responses



Most members said that they were informed about the event during a rehearsal, although almost half the members have also been notified using the group's Messenger chat or from another member. This shows although the band does use some technology, most of the important messages are passed on during rehearsals.

How easy was it to inform the band that you were able to take part?

11 responses

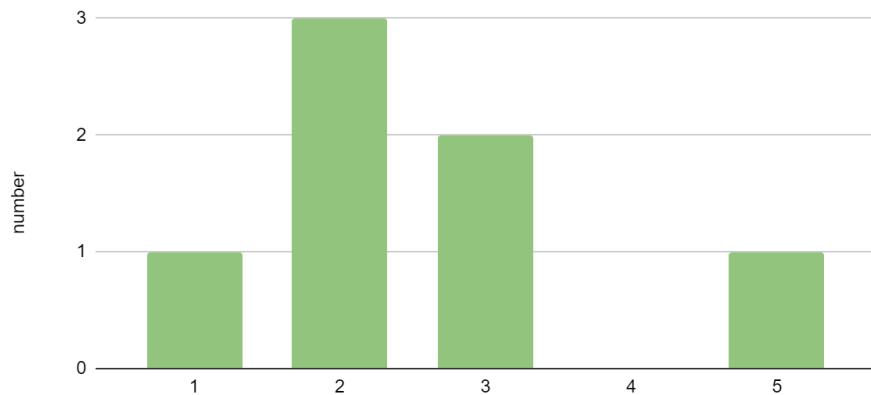


Most of the respondents said that it was fairly difficult to tell the band that they were able to do an event. This is due to the nature of the current system, as most communication about events is done verbally during rehearsals.

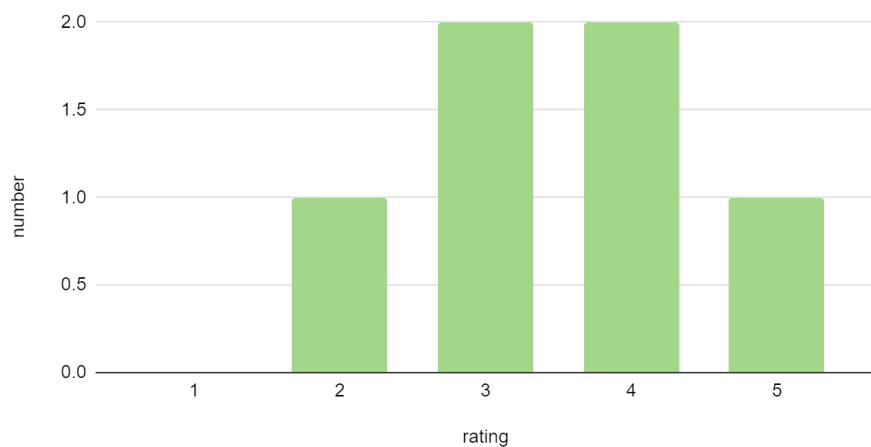
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How easy was it to inform the band that you were able to take part? - PSB



How easy was it to inform the band that you were able to take part? - PYTB



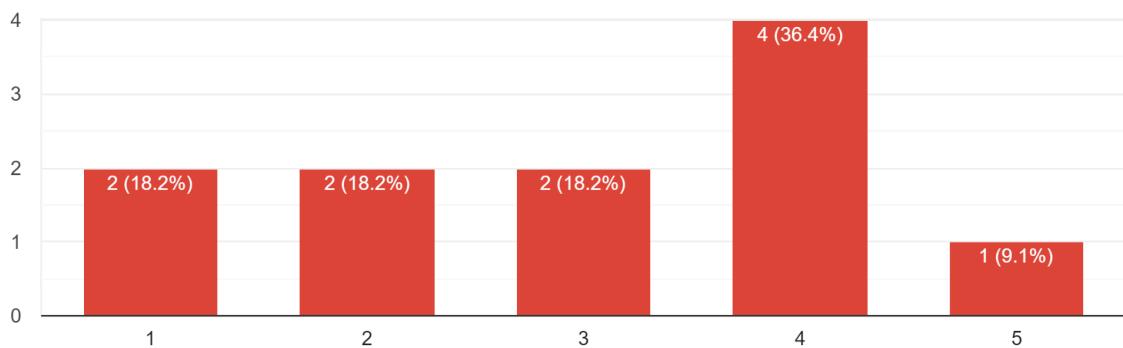
There is also a difference in the ease of responding to an event between different groups. PYTB members generally found it much easier to confirm if they were able to attend an event than PSB members. Despite using the same systems of confirming attendance, PYTB manages events better. This may be due to the size of the bands and also the members of them, as PYTB contains more families so it may be quicker to respond.

## Programmed Solution to a Problem - Investigation

Nia Hawkins: 7183 - The Maelor School: 68146

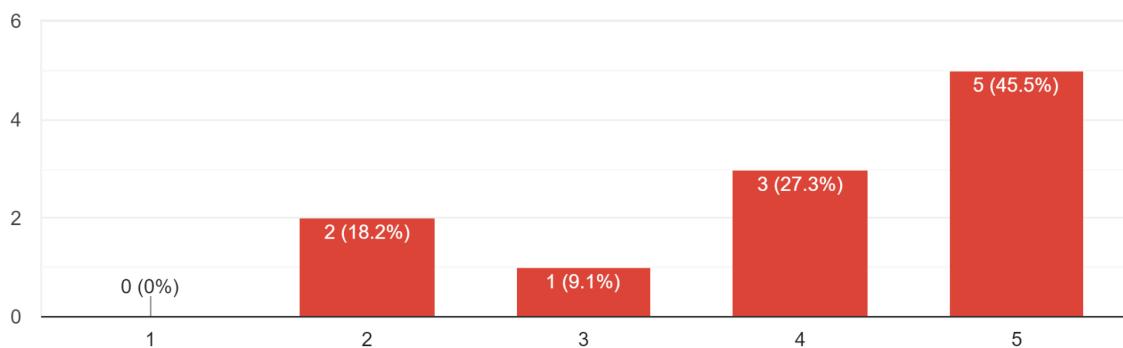
How easy was it to find an event's time, location etc..?

11 responses



How easy was it to find what music would be played at an event?

11 responses



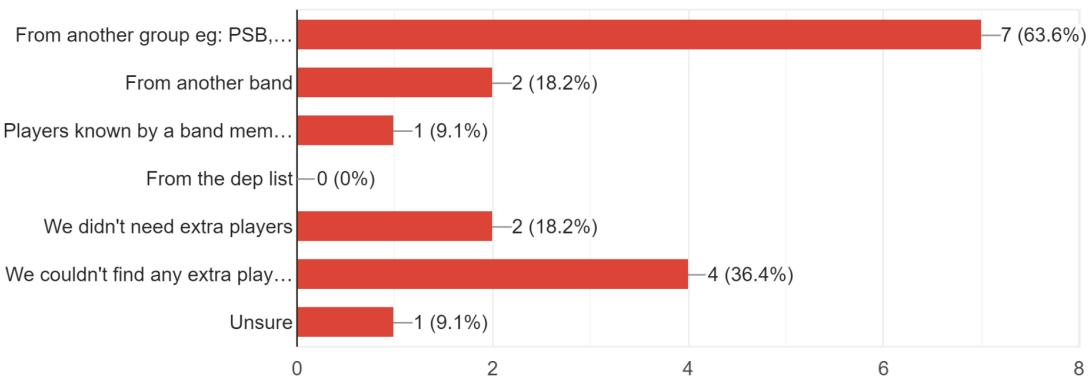
Most players found it fairly easy to find out event details, but compared to finding the event's programme, the current method is not as effective. Almost half the respondents said it was very easy to know what music was going to be performed. The programme for events is usually written on a whiteboard which is displayed in the rehearsal room. This shows that most players prefer being able to read the information instead of it being announced during a rehearsal.

## Programmed Solution to a Problem - Investigation

Nia Hawkins: 7183 - The Maelor School: 68146

### How were additional players found?

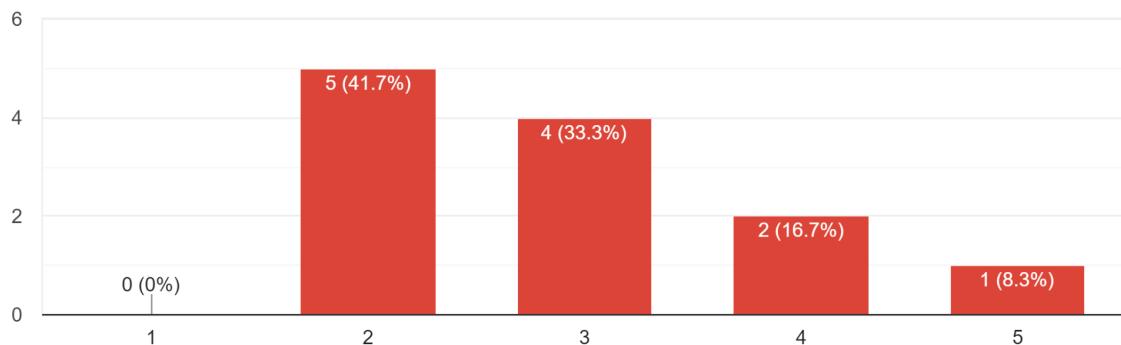
11 responses



The way the band finds extra players is not effective as the band has a 'dep' list when they do not have enough players, but as far as the players are aware, they do not use it. As the list is paper-based, it may be difficult for the band to use. The fact that 36% of the players said that they were not able to find additional players, suggesting the 'dep' list might not have been used.

### How easy was it to enter/update your contact details?

12 responses



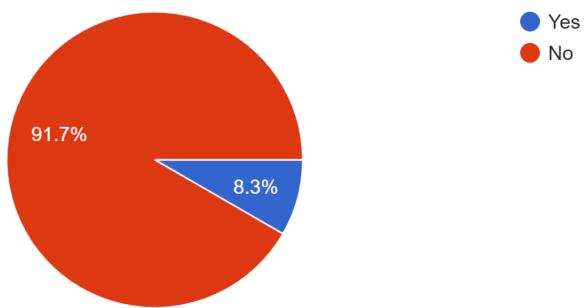
Most players found it quite difficult to enter and update their contact details. The paper forms are time-consuming to fill in, especially if their details have not changed. If their contact information changes during the year, it can be even more difficult to change it. This shows that the players do not like the paper-based system for contact details.

## Programmed Solution to a Problem - Investigation

Nia Hawkins: 7183 - The Maelor School: 68146

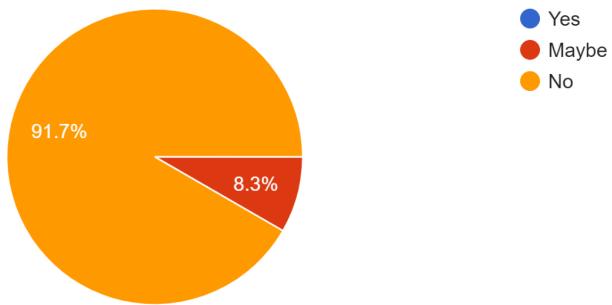
Are you aware of the security methods the band has in place to keep your personal data secure?

12 responses



Are these security methods sufficient?

12 responses



Nearly all players asked were not aware of the security methods that the band has in place to protect data. They all believe that the current security methods are not good enough. As the system is paper-based, there is little security on the files. If data is damaged, there is no backup so the data will be lost.

## Observation

During a rehearsal, I observed how the instrument steward manages the instruments. I discovered all instruments are stored in one spreadsheet. The name of the instrument and the serial numbers of all instruments the band owns are stored. If an instrument is loaned to a member, their name is included.

Serial number	Instrument	Location
JP0432	Cornet	Cupboard
BN6271	Cornet	Tom Jones
JP2218	Cornet	Cupboard
YA1023	Cornet	Cupboard
YA9203	Cornet	Cupboard
BN3845	Cornet	Cupboard
BN0949	Cornet	Cupboard
YA8836	Trombone	Ben Williams
BN2041	Trombone	Allan Richards
YA2846	Tenor horn	Ffion Edwards
BN7732	Tenor horn	Cupboard
BN2981	Baritone	Cupboard
JP3382	Baritone	Cupboard
YA9181	Euphonium	Cupboard

There is no way to sort the instruments or search for a specific instrument. If another field was to be added, such as when the instrument was last repaired, it would take a long time to enter the data. It would also lead to duplication of data which makes the file more difficult to search and makes it unnecessarily larger.

## Programmed Solution to a Problem - Investigation

Nia Hawkins: 7183 - The Maelor School: 68146

I also observed how the events coordinator processes events. When someone fills in the form on the band's website, the events coordinator is notified. They will contact the conductor of the Silver Band who then decides if they would like to do the event. If they want to do it, the events coordinator will inform the band in a rehearsal about the event and make a list of available players. If the Silver band does not want to play in the event or they do not have enough players, the event is passed to the Youth and Training Band, and the event is announced at their rehearsal too. If a band can do the event, the events coordinator will respond to the customer and collect the relevant details about the event. These details include location, facilities and the type of event. They will update the band in the following rehearsals.

Please Use This Form For Bookings, To Join The Band, General Enquiries And Hall Hire

Name:

Email:

Phone:

Message:

I'm not a robot   
reCAPTCHA  
Privacy • Terms

**Send Message**

This method is very time-consuming as rehearsal time is wasted when an event has to be discussed. If someone is absent from the rehearsal when the event is announced, they will not be informed about the event. In this case, the events coordinator has to ensure that everyone has told them if they can play or not. If a member's plans have changed, they will have to talk to the events coordinator in a rehearsal, which uses more time. The responses are also recorded on paper so it is slow and only the events coordinator sees them.

## Interviews

### Conductor

I asked a conductor several questions about how they record attendance at rehearsals.

#### **How do you store attendance?**

"I have a basic blank register book in which I write the names of all the players at the start of each year. I write the players in order of instrument so it is quicker to mark attendance"

#### **How is attendance recorded at each rehearsal?**

"I write the dates of the rehearsals and mark if someone is present."

#### **Do you record any other details during a rehearsal?**

"I also record if someone has told them that I will not be at the rehearsal or not."

#### **How do you add new players to the attendance record?**

"If a new member joins, their name will be added to the bottom of the list."

#### **Are there any issues with the attendance record?**

As it is on paper, I find it difficult to find if a member did attend the rehearsal on a specific date and as new players join the band regularly, the register is not sorted fully.

### Secretary

I also interviewed the secretary about how I collect member details.

#### **How do you collect member details?**

I send out a paper form each year for the players or their parents, if the member is under 18, to enter their contact information, any medical details and photograph permissions. The forms are collected and then I store them in a folder.

#### **What methods do you have in place to ensure data is secure?**

The old forms are securely disposed of once an updated form has been returned. I store the folder in a locked cupboard and the conductors all store the contact details of each of the players in their phones so the players can be notified in an emergency.

## Programmed Solution to a Problem - Investigation

Nia Hawkins: 7183 - The Maelor School: 68146

## Existing solutions to similar problems

It was difficult to find a system that performs the same functions as the new system. I decided to find systems that handled each different feature that will be part of the new system.

### Zenefits

The image contains two screenshots of the Zenefits software. The top screenshot is titled 'Employee Directory' and shows a grid of employee profiles. On the left, there are three sections for filtering: 'FILTER BY TYPE' (Full Time, Part Time, Contract), 'FILTER BY STATUS' (Active, Offer Not Signed, Offer Incomplete, Terminated), and 'FILTER BY LOCATION' (San Francisco, New York City, Los Angeles, Chicago). The profiles shown are Naomi Brett (Software Engineer, Full Time, San Francisco), Taylor Meads (Staff Accountant, Full Time, San Francisco), and Melissa Morillo (Sales Associate, Full Time, New York). The bottom screenshot is titled 'Onboarding' and shows a form for Todd Dobson, Sales Associate. The form includes fields for 'Job Details': Job Title (IT Associate), Department (IT), Work Location (San Francisco), Classification (Independent Contractor), and HIRE DATE (mm/dd/yyyy). There are also 'Back' and 'Next' buttons at the bottom of the form.

Zenefits is a staff management program. It allows employers to add, edit and delete employees and their details. The system stores details such as job title, department and work location. These details allow the staff to be searched for, allowing a manager to find who would be suitable to put on a task. The new system I will create will have some similar features. I will include the ability to add, edit and delete players and their details. The players will have enough details stored about them so they can be sorted and searched by group, instrument or ability.

## Programmed Solution to a Problem - Investigation

Nia Hawkins: 7183 - The Maelor School: 68146

This system has a user-friendly, intuitive interface that shows all the employees in the company, but they can also be sorted. It shows some key details about the employees in the employee directory and more employee details can be found by viewing the employee. This feature makes the system easier to use for a user that has little experience using technology, which will be useful to implement in the new system.

The screenshot displays a payroll management interface. On the left, a sidebar lists employee names with checkboxes: Angela Hall (checked), Todd Dobson (checked), Austin Baker (checked), Elizabeth James (unchecked), Kate Peters (checked), Alexander Singh (unchecked), and Jack Martinez (checked). The main panel shows details for Todd Dobson. At the top right, it says 'TOTAL COST \$3,424.79' and 'NET PAY \$1,560.50'. Below this, under 'Earnings', it shows 'HOURS 43.00', 'RATE \$65.00', and 'AMOUNT \$2,795.00'. Under 'Deductions', there are four items with amounts: '\$407.66', '\$153.81', '\$35.97', and '\$187.02'.

The system also includes payroll management which allows earnings to be calculated. This includes the ability to see the employees' hourly rate and where each of the deductions has come from. I will include a similar feature in my system as it will allow the band to enter the costs of an event, such as transport and equipment hire and to calculate profits from an event

## Programmed Solution to a Problem - Investigation

Nia Hawkins: 7183 - The Maelor School: 68146

### Bookedin

The screenshot shows a weekly calendar view for Uptown Esthetics from June 14 to June 20, 2015. The calendar is color-coded to represent different clients or service types. Key events include:

- Sunday 14:** 10a - Scarselou Johna, 11:30a - Mila Kit, 1:30p Jennifer Lawrence, 3p Mr. Burns.
- Monday 15:** 9a Christian Portman, 9:15a Angelina Jolie, 10a - Natalie Portman, 10:15a Charize Theron, 11:45a Kate Winslet, 12p Emma Stone, 1:30p Famous Dave, 2p Jessica Alba.
- Tuesday 16:** 9a - Billy Wk, 9a - Patrick, 9:30a - Clar, 9:30a - Luis, 10a - Noah Kidm, 10a - Noah Ashleigh B, 10a - Lauren Tom, 11a - Megan Flio, 11a - Lebron James, 12p - Steph, 1p - Noah Sm, 1p - Samuel L., 1:30p - Rupert Murdoch, 2p - Katelyn, 2:30p - Bill Murray, 3p - 3p - Matthew, 3:30p - Anastasia Disney, 3:30p - Johnny Depp, 4p - Brad Pitt, 4p - Apu Nahasapeemah.
- Wednesday 17:** 9a - Maggie Simpson, 9:30a - Marge Simpson, 10a - Jackie Jo, 10a - Homer Simpson, 11a - Bart Simpson, 11:30a - Harry Po, 12:30p - Hank A, 12:30p - Ned Fl, 2p - bobby jones, 3:30p - Masami Aomame.
- Thursday 18 (Today):** 9a - Leanne Rhym, 9a - Frankie Pizza, 10a - Samar Smith, 10a - Melissa Ethrid, 10:30a - Un, 12p - Bob Barker, 1p - Janet Jac, 1p - John DiMaggio, 2:15p - Robert Downey Jr., 3:15p - Sally Field, 3:30p - Moe Szyzak.
- Friday 19:** 9a - Penelope Cruz, 9a - Sally Field, 10a - Halle Berry, 11a - Jennifer Aniston, 12p - Francine Geraidoop, 2p - Julianne Moore, 3p - Michael Jackson.
- Saturday 20:** 10a - Megan Fox, 10a - Kate Beckinsale, 11a - Amanda Seyf, 11a - Sandra Bullock, 1p - Olivia Wilde, 1:30p - Cate Blanchett.

Bookedin is a time management system that helps organise work meetings and events. It has a calendar-based interface that displays the week's events to the user. It allows the company to enter any events and edit them. In the new system, I will display the bands' events in a clear way to the users and I will allow them to enter and edit their bookings. This system colour-codes bookings which makes the system more user-friendly but a calendar-based interface may not be possible with my current programming knowledge and timeframe.

Order	Name	Services	Visibility	Edit	Delete
	Leanne (Leanne) leanne@yahoo.com	Full Day Session, Free Consultation, 1 Hour Session, 4 Hour Session	Public	<input checked="" type="checkbox"/>	<input type="button" value="Delete"/>
	Sheila (Sheila)	Full Day Session, 1 Hour Session, 4 Hour Session, Free Consultation	Public	<input checked="" type="checkbox"/>	<input type="button" value="Delete"/>
	Aneudy (Aneudy)	Full Day Session, 1 Hour Session, 4 Hour Session	Public	<input checked="" type="checkbox"/>	<input type="button" value="Delete"/>
	Patrick (Patrick)	Full Day Session, Free Consultation, 1 Hour Session, 4 Hour Session	Public	<input checked="" type="checkbox"/>	<input type="button" value="Delete"/>
	Mike (Mike)	Full Day Session, Free Consultation, 1 Hour Session, 4 Hour Session	Public	<input checked="" type="checkbox"/>	<input type="button" value="Delete"/>
	Renat (Renat)	Full Day Session, 1 Hour Session, 4 Hour Session, Free Consultation	Private	<input checked="" type="checkbox"/>	<input type="button" value="Delete"/>

The system allows the creation of multiple calendars to aid the organisation of bookings. This allows bookings to be sorted by a calendar. This will be included in my program as it will make it easier for

## Programmed Solution to a Problem - Investigation

### Nia Hawkins: 7183 - The Maelor School: 68146

the band to organise the events of the different groups from the point of view of the events coordinator.

The screenshot shows a booking form for a '1 Hour Session' at \$200.00 on Thursday, November 22, 2018, at 4:00pm. The form includes fields for name ('Bob Jones'), email ('bob@bobjones.ca'), phone ('3432342342'), and a comment section ('test!'). Buttons for 'Book It' and 'Cancel' are visible at the bottom.

It also allows a customer to book the company by filling in a form. Bookedin creates a link to the booking form for customers, where they can enter their contact details and comments. These bookings are automatically added to the company's calendar and they are notified by email. This is an easy way for event booking but as this system is web-based, I will not be able to do this in my programming language.

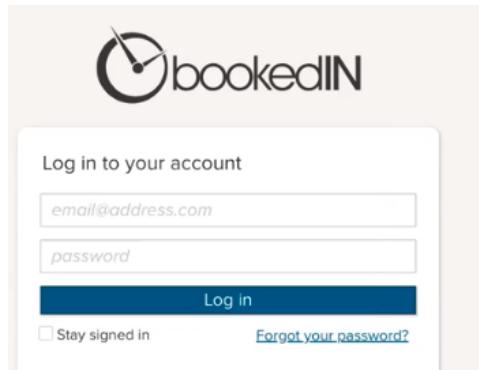
The screenshot shows the Bookedin software interface under the 'Clients' tab. It lists several clients with their names, phone numbers, and emails. Each client entry has options to 'View details & history', 'Request payment', and 'Delete'. On the left sidebar, there are links for 'Calendar', 'Clients', 'Activity', 'Book Appointment', and 'Request Payment'. A 'Coming Up Today' section shows appointments for Bob Jones at 3:30 pm and 3:40 pm.

Name	Phone Number	Email	Actions
A. Mike Iwaslow	(204) 333-2222	mike@gmail.com	<a href="#">View details &amp; history</a>   <a href="#">Request payment</a>   <a href="#">Delete</a>
Acme Jones	(303) 333-4444	client@test.ca	<a href="#">View details &amp; history</a>   <a href="#">Request payment</a>   <a href="#">Delete</a>
Adam Lawrence	(888) 999-8888	leanne@bookedin.com	<a href="#">View details &amp; history</a>   <a href="#">Request payment</a>   <a href="#">Delete</a>
Allen Rickman		leanne@bookedin.net	<a href="#">View details &amp; history</a>   <a href="#">Request payment</a>   <a href="#">Delete</a>
Amy Winehouse	393-9393	atm@test.com	<a href="#">View details &amp; history</a>   <a href="#">Request payment</a>   <a href="#">Delete</a>
Anastasia	(777) 777-7777	leanne@anastasia@bookedin.com	<a href="#">View details &amp; history</a>   <a href="#">Request payment</a>   <a href="#">Delete</a>
Aneudy Guzman	(555) 444-4444		<a href="#">View details &amp; history</a>   <a href="#">Request payment</a>   <a href="#">Delete</a>

The system allows the company to view customer details so they can contact them if needed. This feature may be useful to the band if they need to respond to a booking or need extra information about an event. I could decide to not include this in the final program as I have a short timescale for the project.

## Programmed Solution to a Problem - Investigation

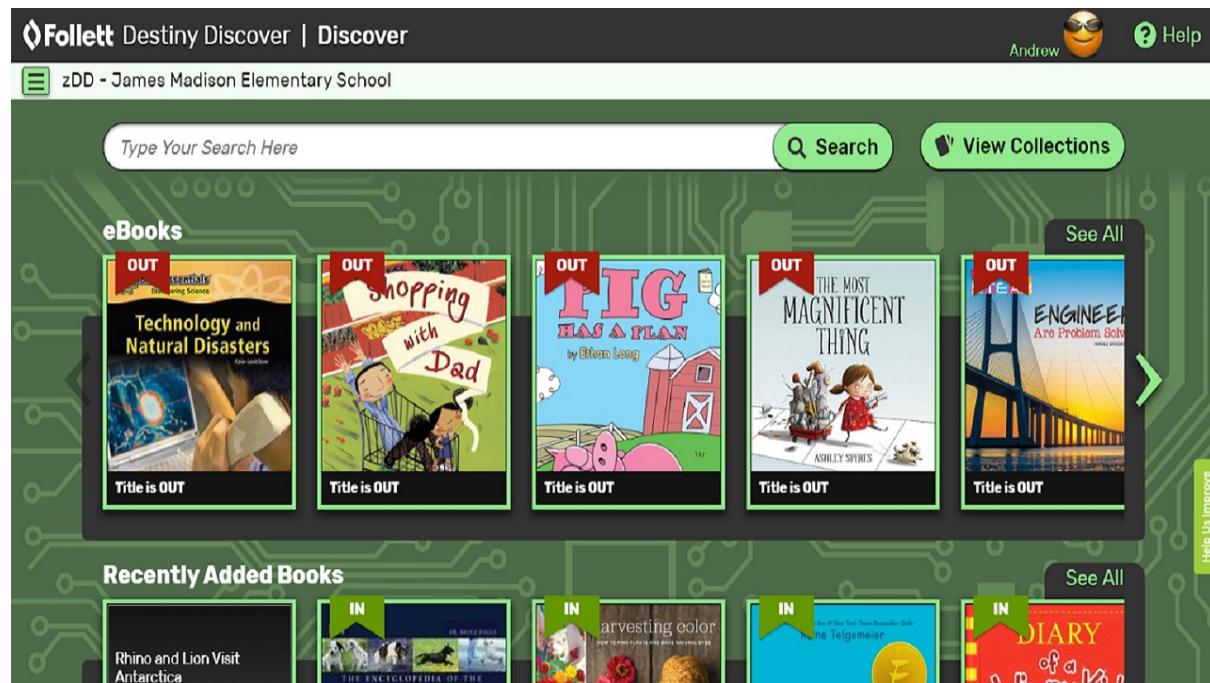
Nia Hawkins: 7183 - The Maelor School: 68146

A screenshot of the bookedIN staff logins page. The left sidebar shows navigation links for "Calendar", "Clients", "Activity", "Book Appointment", and "Request Payment". Under "Coming Up Today", there are entries for 3:30 pm (Bob Jones), 3:40 pm (Joe Jones), and 4:00 pm (Bob Jones). The main content area is titled "Staff Logins" and contains a table with four rows of staff information. The columns are "Name", "Book Apps?", and "Change Settings?". The data is as follows:

Name	Book Apps?	Change Settings?
Leanne Jownd	Yes	<a href="#">Edit</a> <a href="#">Delete</a>
Bob	No	<a href="#">Edit</a> <a href="#">Delete</a>
Sheila	Yes	<a href="#">Edit</a> <a href="#">Delete</a>
Jerry	Yes	<a href="#">Edit</a> <a href="#">Delete</a>

It also allows staff to have logins with different levels of access. This is a feature that will be included in my program as many roles within the band require access to different areas of the system

## Follett Destiny Library Manager



Follett Destiny Library Manager is a book management system. It allows customers to search for a book and find out details about them. It also sorts books based on their genre. I will include the ability to search and sort music stored in the music library. It allows the user to borrow books from the library. This feature could be included in the new system as the band does rent music out to other nearby bands. However, with the timescale of the project, I have decided not to include this feature.

The system allows the librarian to add books to the record, which will be included in my system as I will include the ability to add new music to the record. The system also records the number of copies of a book that are in the library and marks each book as available or not. This feature will not be in the system.

This will also be the basis of the instruments area of the system as new instruments will be able to be viewed and added, and they will be able to search for instruments stored.

## Stakeholders

### Conductors

The conductors will have access to most of the system as they are responsible for many aspects of band management.

- **View member's medical and contact details**
  - They must be able to find out details about each member so they can contact parents in an emergency
  - They must be able to see the photograph permissions so they know who should not be visible in photographs posted to social media
- **View the music library**
  - The conductors are responsible for choosing the music that their group plays so they need to know what music is available
  - They need to be able to see when music was last played by the band so the band can play music they have not performed before
- **View and edit the group register**
  - They need to be able to see who is part of their band so they can record attendance
  - Conductors also need to see the number of players and what instruments they play, so vacancies in the band can be advertised
- **Edit and view event registers**
  - Conductors need to know who is playing in an event so they can tailor the programme to the available players
  - They can also help find extra players to stand-in from the other groups if needed
  - Any players who are no longer available tell the conductor if the events coordinator is unavailable, so they need to be able to change the record
- **View and edit band events**
  - Conductors need to know when their group has events so they can plan the rehearsals
  - They also need to know the relevant details about the event so they can create a suitable programme, which will be able to be entered into the event details for the players
  - They also need to be able to see other event details such as the location and time, so they know where to go, and can also tell any players who are unsure about any of the logistics of the event
- **View and edit 'dep' list**
  - Conductors need to be able to see any players that could stand-in in an event so they can find a suitable player

## Programmed Solution to a Problem - Investigation

Nia Hawkins: 7183 - The Maelor School: 68146

- If someone is no longer able to help the band, or they find someone new who can, they need to be able to change the list.

### Band members and parents

As the band has members of all ages, parents of younger members also need to be able to access the system.

- **View and edit details**

- Players and parents need to be able to easily edit their contact and medical information to ensure it is up to date

- **View band events**

- Players and parents need to know the events the band is doing and the event details, so they know where to go and what they need
- They need to know the programme for the event so they can practise outside of rehearsals before the event

### Librarian

The librarian manages the band's music store. They are a member of the band so will have the same requirements as band members in addition to the specific librarian features.

- **View and edit music library**

- The librarian must be able to view the music the band owns so they can determine if any new copies need to be bought
- They need to be able to see when the
- They need to be able to add, delete and update music in the record

### Instrument steward

The instrument steward is responsible for managing the band's store of instruments. They are also a member of the band so require the same features as band members.

- **View and edit instrument record**

- The instrument steward needs to be able to view the record of instruments to see what instruments the band has available for loan, and who has a band instrument
- They must be able to edit the record to add and remove instruments, or update an instrument's details

## Events coordinator

The events coordinator is responsible for managing the band's engagements. They are also a member of the band so require the same features as band members.

- **Edit and view event registers**
  - The events coordinator is responsible for recording who can play in an event
  - They need to be able to update the record if someone can no longer play at the event
- **View and edit band events**
  - The events coordinator is responsible for collecting all the information about an event, which can be passed on to the conductor and the band members
  - They need to be able to add, remove and update events
- **View and edit 'dep' list**
  - The events coordinator needs to be able to see any players that could stand-in in an event so they can find a suitable player
  - If someone is no longer able to help the band, or they find someone new who can, they need to be able to change the list

## Data collected for input and processing

### Band members

The contact and medical details of band members are stored so someone can be contacted in an emergency. They also store the instrument the member plays so it is easier to find extra players for an event from within the band. They also require the member to give photograph permission, as the band takes pictures of the players at events and publishes them on social media and on their website.

The details collected about each member are:

- Name
- Date of birth
- Email address
- Phone number
- Emergency contact phone number
- Photograph permission - Yes/No
- Instrument - e.g. cornet, tenor horn, trombone
- Playing level - selection from 1 to 8+

### Customers

Details about the event the customer wants to book the band for are collected so the event can be arranged. Further emails may be required to gather enough information about the event and manage the payment.

The information inputted by the customer is:

- Name
- Email address
- Phone number
- Address of event
- Event description

### Music Library

The current music library record is very basic and contains few details about the music the band owns. It is a simple list of the pieces of music that the band has.

The data inputted into the music library is:

- Title of the music
- The composer (and arranger) of the piece

## Instrument record

As the instrument record has recently been updated, it stores lots of details about the band's instruments. It contains enough information so that each instrument the band owns can be identified and the instrument steward knows where the instrument is.

- Serial number
- Name
- Instrument
- Who the instrument is loaned to

## Events

When an event is booked, players in the relevant group need to know all relevant details about the booking so the performance can run smoothly.

- Event name
- Address
- Date and time
- Group required - selection from *PSB/PYTB/PBB*
- Type of event - e.g. garden party, church carol service
- Repertoire
- Organisers name
- Organisers phone number

## Outputs of the current system

The current system has few outputs, due to the nature of the system and the data that is processed.

- Conductors can manually search for players' contact details if they need to be contacted
- Conductors can view the players in their group and their attendance
- The music library is manually searched by the librarian when the conductor decides to play a new piece
- The programme for an event is written on a whiteboard that is displayed in the rehearsal room for band players to see
- The event details from the website form are emailed to the events coordinator, who announces them at rehearsals

## Limitations of the current system

The current system has many limitations, which I have discovered during the investigation.

The verbal nature of events communication does not work well. This is the main method of informing band members about an engagement. It takes up time in rehearsals and band members find it very difficult to tell the events coordinator that they are going. As the record of players who can play in an event is paper-based, and the way band members have to respond, it is very easy for the events coordinator to not add someone to the list, or write the name of a member who cannot attend. These errors lead to more time used in rehearsals organising an event instead of practising for it. As shown in the questionnaire, the players prefer the programme written on a board compared to announcing the time and location of the event.

A paper register is practical as it is quick and easy to fill in during rehearsals, where access to a computer is currently limited. However, once it has been created for the year, it is difficult to add a new member to the register. The register is created in order of instrument, and as it is on paper, a new member must be added at the end instead.

It can also be easier to gather details about players using a paper form as some of the band members are not good with technology or do not have access at home to fill in a form that was emailed. However, the paper-based system cannot store as much information as it is very time-consuming to record it and will take up more space.

The current system has little security. If someone knows where to find the register or the store of players' details, they can access their confidential information. Any existing digital areas do not have a separate login and are not backed up on another computer, so data could be lost. Only the people who create the documents have access to them, which can make it difficult for another person to help with an aspect of the band's management.

There is no way to sort the instruments or search for a specific instrument. If another field was to be added, such as when the instrument was last repaired, it would take a long time to enter the data. It would also lead to duplication of data which makes the file more difficult to search and makes it unnecessarily larger. This also applies to the player's record and the music library, as it is on paper.

When additional players are needed, they are found from other groups and they rarely use the 'dep' list. This could suggest that the current method to store player records is not sufficient.

It is very difficult for players to update their contact details. This is a paper-based form filled out once a year. The players find it hard to change their contact details at any other point in the year and most players' details do not change, wasting time.

## Project specification

The purpose of this project is to create an efficient management system for Porth-y-waen Silver Band that allows them to record band members, attendance to rehearsals, instruments, and music, and manage event bookings. This will reduce the need for and dependency on the paper-based current system. The new system will include different levels of access to the system through a login screen. All data about members, instruments, event bookings, attendance and music will be stored in a relational database. The database needs to be able to be searched and sorted to allow the exact data to be retrieved and viewed. The user must be able to add, update and delete records from the database.

## Justification of the methods to be used

I will use Visual Basic to create my program as I have lots of experience using the language. This will allow me to create the system quickly so I will be able to complete the project within the timescale. It also allows me to effectively make use of the available resources in the IDE to develop and test the program.

Visual Basic allows the interface to be created by dragging and dropping buttons and textboxes onto a form. This enables me to be able to quickly create an interface and as it is intuitive, this area of program development requires little training. This allows more time so I can focus on the back-end development of the program.

Visual Basic can also be used alongside many different databases, such as SQL. The project has a database focus so this makes Visual Basic the ideal language to develop the program. It is also a high-level language which makes it easier for me to write and debug the code compared to a low-level language.

However, Visual Basic must complete more processing per line of code than other high-level languages as it does not handle pointers directly. This could cause the program to become slow.

## Success criteria and objectives

I have created success criteria and objectives for the project to show the overall goals and to ensure I successfully complete the required system.

I will produce a system for Porthywaen Silver Band that:

- Allow band and committee members to login to the system
  - Ensures personal data is secure and cannot be accessed by unauthorised users
  - Store encrypted login details of players in a database
  - Players and the committee with specific roles have different levels of access
  - Test that users are able to login to the system
- Allow players and their relevant details to be added, updated and deleted from a database
  - Ensure that players can be added and removed from the member database
  - Encrypt player data so it is secure and cannot be read by an unauthorised person
  - Allow players to input and update their details
  - Only allow conductors and responsible players to view member contact details
  - Test that players and their details can be inputted, deleted and viewed by the correct users
- Allow players to be added and removed from groups
  - Allow conductors to add and remove the relevant players from the bands
  - Test that only conductors are able to do so
- Allow attendance to be recorded for rehearsals
  - Allow attendance to be marked for each player in each group on a selected date
  - Allow attendance to be updated
  - Allow the attendance to be viewed as a chart for a selected number of rehearsals
- Store contact information of 'deps' who could help in events in a database
  - Allow the band to enter and edit this list to enable the band to quickly find extra players for an event
  - Allow the database to be searched and sorted
  - Test that users can view, input and delete data and that it can be searched and sorted
- Store music and their details in a database
  - Ensure that all music is entered into the database
  - Ensure all music details are correctly entered into the database
  - Allow music to be searched and sorted
  - Test that music can be entered, edited, searched and sorted
- Store instruments and their details in a database
  - Ensure that all instruments are entered into the database

## Programmed Solution to a Problem - Investigation

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- Ensure all instrument details are correctly entered into the database
  - Allow the user to see if an instrument needs servicing
  - Allow instruments to be searched and sorted
  - Test that instruments can be entered, edited, searched and sorted
- 
- Display bookings and their details in a calendar view
    - Ensure that band players are able to view all events and details
    - Only allow relevant players to be able to edit event details
    - Allow events to be sorted by group and searched
    - Test that bookings can be viewed
    - Allow players to indicate availability for an event and allow the players to view these responses
- 
- Calculate the price of hiring the band for an event
    - Allow the committee to set costs for different aspects of the event
    - Allow users to input the events requirements
    - Output the total cost to hire the band
    - Test that prices can be entered and the correct costs are calculated
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