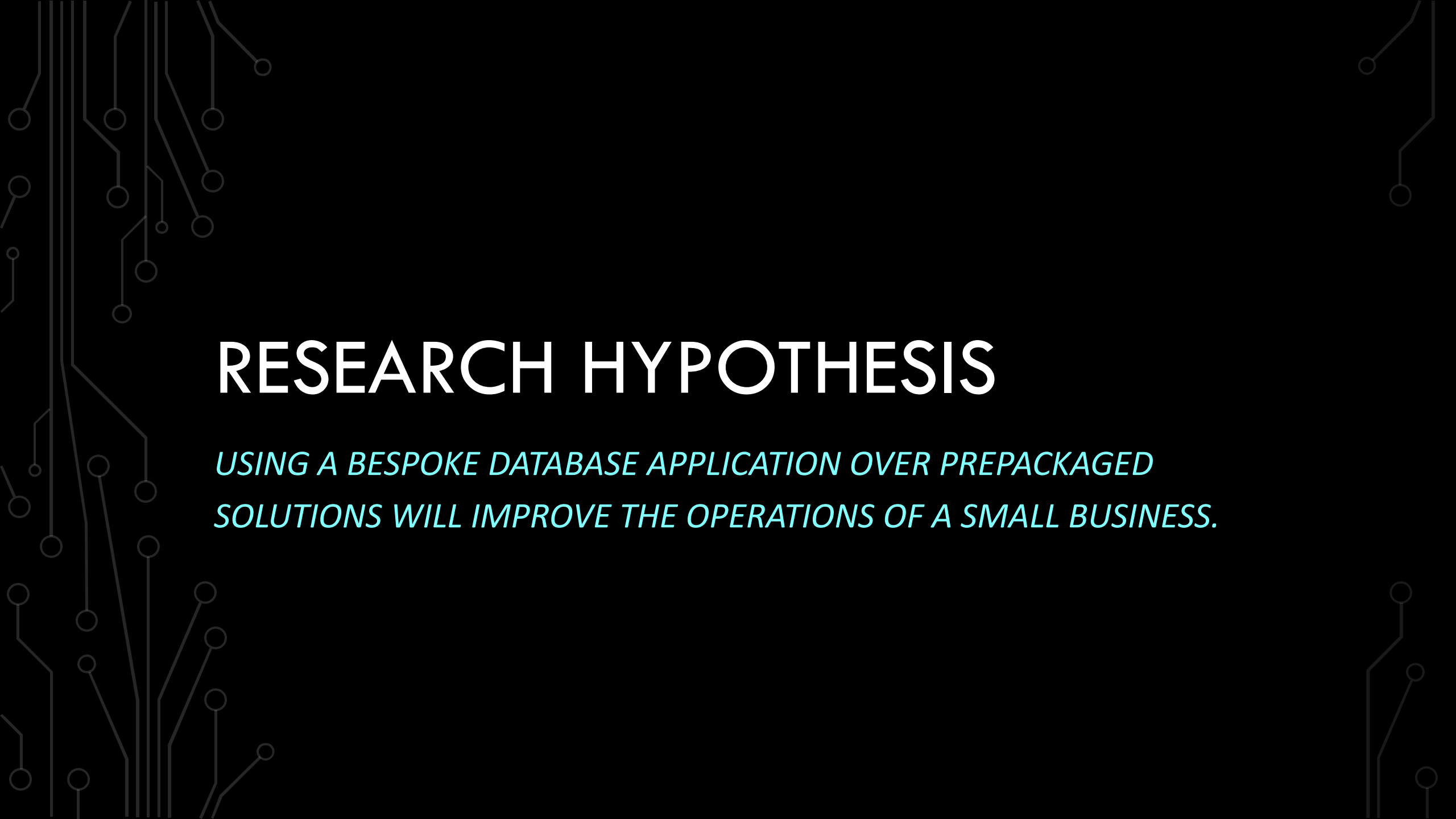


A decorative graphic on the left side of the slide consists of a network of light blue lines and small circles, resembling a circuit board or a stylized tree structure, extending from the top to the bottom of the frame.

BSC APPLIED COMPUTING PROJECT MANAGEMENT AND RESEARCH METHODS

BY AARON MILLS 261481



RESEARCH HYPOTHESIS

USING A BESPOKE DATABASE APPLICATION OVER PREPACKAGED SOLUTIONS WILL IMPROVE THE OPERATIONS OF A SMALL BUSINESS.



PROJECT INTRODUCTION



CLIENT BACKGROUND

- Based on a real client
- Client is a housing insulation removal business
- Current information system is Excel
- Client would like a better solution for storing and viewing information.



CLIENTS CURRENT SYSTEM

Current solution:

- Excel spreadsheet

Problems:

- Smaller screens
- Lack of visibility
- Too much information on one line
- Bad layout



LITERATURE REVIEW



LITERATURE REVIEW CONTENT

- Existing Prepacked Solutions
- Bespoke software discussion
- Ease of use in software & User skill level and understanding
- Nielsen Normal Group IT Literacy Study
- Trends in business IT
- Software solution costs



EXISTING PREPACKED SOLUTIONS

- Microsoft Products Access & Excel
- Each offer different environments
- Excel being versatile and easy to get into, good for :
 - Data entry and storage
 - Reporting
 - Data analysis
 - Visualizations.
- UK government uses Excel to store Covid-19 Information but they encountered problems with reliability with large data sets
- What the client uses is very surface level tools in Excel. (data entry, auto filling, cross referencing content from other documents.
- Other noteworthy software is Google Sheets

BESPOKE SOFTWARE

- Bespoke system will remove unnecessary tools or functionality that won't get used.
- Study by Farhad Daneshgar, Graham, and Lugkana Worasinchai on build vs buy decision for software acquisition by small to medium enterprises.



EASE OF USE IN SOFTWARE & USER SKILL LEVEL AND UNDERSTANDING

- Several considerations to make:
 - Ease of navigation
 - Attractive visual Design
 - Fitting to the business process
 - Additional support to guide the user
 - Based on current the current client workforce being of the older generation.
 - Age does not equate to skill level but should be considered.
- 
- 



NIELSEN NORMAL GROUP IT LITERACY STUDY

- OECD (The Organization for economic co operation and development, a club of industrialized countries)
 - Looked at different computer skill levels
 - Ages 16- 65
 - People above 65 were not chosen due to lack of interest
 - 215,942 Participants
 - Provided with 14 IT tasks that range in difficulty
- 
- 

NIELSEN NORMAL GROUP IT LITERACY STUDY

- Outcome results in 4 levels of IT proficiency:

- Level 0 14%
- Level 1 29%
- Level 2 26%
- Level 3 5%
- 26% unable to use a computer

Tasks ranged from deleting email messages up to finding what percentage of emails sent by x person during x time were about sustainability.

Considerations:

- People have a wide range of IT skills and systems should cater to them all if possible.
- Design for the common user and not the designer.



TRENDS IN BUSINESS IT

- Excel has been long standing software solution
- Used in most business sectors
- Steady decline in usage over several years
- Even though 63% of business within US report using it for budgeting and accounting in 2018. The trend of Excel declined down to 54% in 2019

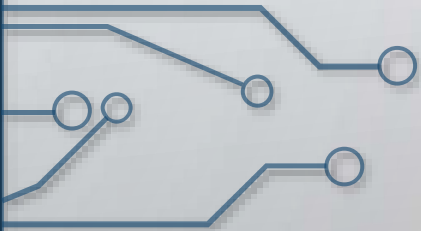
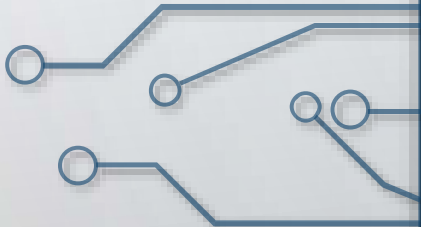
SOFTWARE SOLUTION COSTS

Bundled Software

- Microsoft bundles their software together
- Most of the time the software is not used.
- They offer packages between £11.50 - £30.80 per user/month.
- Costs can accrue over time and not getting full value

Bespoke costing

- Bespoke software cost is determined by the client and developer.
- Hostgator offers hosting for £2.64/month which is a lot lower.



PROJECT PLAN

GANTT CHART

AIMS AND OBJECTIVES

Aims

- Plan and develop a bespoke a web database solution
- Determine if the solution meets the requirements of the old system
- Evaluate the success of the new system based on its usability

Objectives

- Collect and document the needs of the business in relation to the old system
- Assess which software packages and methods would be most appropriate for the development
- Conduct a literature review on content relevant to the project
- Design and build the system using the assessed software and methods
- Conduct interviews with employees to determine if the project was a success

RESEARCH METHODOLOGY

- **Research Onion Choices**
- Interpretivism
- Deductive
- Experimental research
- Time Horizon (Cross Sectional)

SOFTWARE CHOICES

- HTML and CSS
- XAMPP
- Composer
- VSCode
- Laravel

SOFTWARE DEVELOPMENT APPROACH

Agile vs Iterative vs Waterfall – {Process}

	Waterfall	Iterative (hybrid)	Agile
Quality	Quality focus changes from Analysis > Design > Code > Test	Quality focus shifts between Analysis/Design phase to Coding/Testing phase	Quality focus on all aspects of SDLC at any given time.
Quality Control	Detection & fixing during system and regression testing at the last phase of project.	Early detection & fixing in each iteration for new features. Followed by regression testing.	Early detection & fixing in each sprint followed by stabilization.
Continual Improvement (CA & PA)	Lessons learned from previous release implemented in next release	Lessons learned from previous iteration implemented in next iteration.	Lessons learned from previous sprint implemented in next sprint
Risk	No Risk Identification. Firefighting during testing phase.	Risk identification & mitigation in dev & test phase of each iteration.	Early identification & mitigation in every sprint.
Postmortem/Retrospection	After every release	After every iteration/milestone	After every sprint in retrospection meeting
Customer Feed back	At the end of the project.	At the end of every iteration	At the end of every sprint



[Database web application] Project Schedule

[NPTC]

Project Start Date 11/2/2021 (Tuesday) Display Week 1
Project Lead Aaron Mills

WBS	TASK	LEAD	START	END	DAYS	% DONE	WORK DAYS
1	Planning			-			-
1.1	Research potential project ideas		Tue 11/02/21	Mon 11/15/21	14	100%	10
1.2	Opening dialogue with client		Tue 11/16/21	Tue 11/16/21	1	100%	1
1.3	Establish a proposed solution idea		Wed 11/17/21	Tue 11/23/21	7	100%	5
1.4	Create a research question or hypothesis		Tue 11/23/21	Mon 11/29/21	7	100%	5
1.5	Determine the needs of the client		Mon 11/29/21	Sun 12/19/21	21	100%	15
1.6	Assess Software Packages		Mon 11/29/21	Sun 12/19/21	21	100%	15
1.7	Write Literature Review		Wed 12/01/21	Tue 1/11/22	30	95%	30
1.8	Create presentation		Sun 12/19/21	Tue 1/11/22	17	0%	17
2	Development			-			-
2.1	Determine requirements		Wed 1/12/22	Fri 3/18/22	48	0%	48
2.2	Create Data Tables		Wed 1/12/22	Fri 3/18/22	48	0%	
2.3	Create ERD & DFD		Wed 1/12/22	Fri 3/18/22	48	0%	
2.4	Design UI		Wed 1/12/22	Fri 3/18/22	48	0%	
2.5	Code an iteration		Wed 1/12/22	Fri 3/18/22	48	0%	
2.6	Test Solution		Fri 3/04/22	Fri 3/18/22	11	0%	11
2.7	Bug Fixes		Fri 3/04/22	Fri 3/18/22	11	0%	11
3	Evaluation			-			-
3.1	Conduct Evaluation interviews		Fri 3/04/22	Fri 3/18/22	4	0%	11
4	Final Report			-			-
4.1	Write Final Report		Wed 1/12/22	Fri 3/18/22	48	0%	48
5	Final Viva			-			-
5.1	Develop final viva presentation		Fri 3/18/22	Tue 4/05/22	4	0%	13
6	Exhibition			-			-
6.1	Create and present exhibition poster		Thu 4/07/22	Fri 4/29/22	4	0%	17

PROPOSED SOLUTION

- **Old system concerns**

- Information on smaller screens provides difficult visibility which interferes with workflow.
- Multiple types of information are bound by a single line for each record.
- Lack of functionality such as filtering results over multiple sheets
- The interface has not been designed with user friendliness in mind.

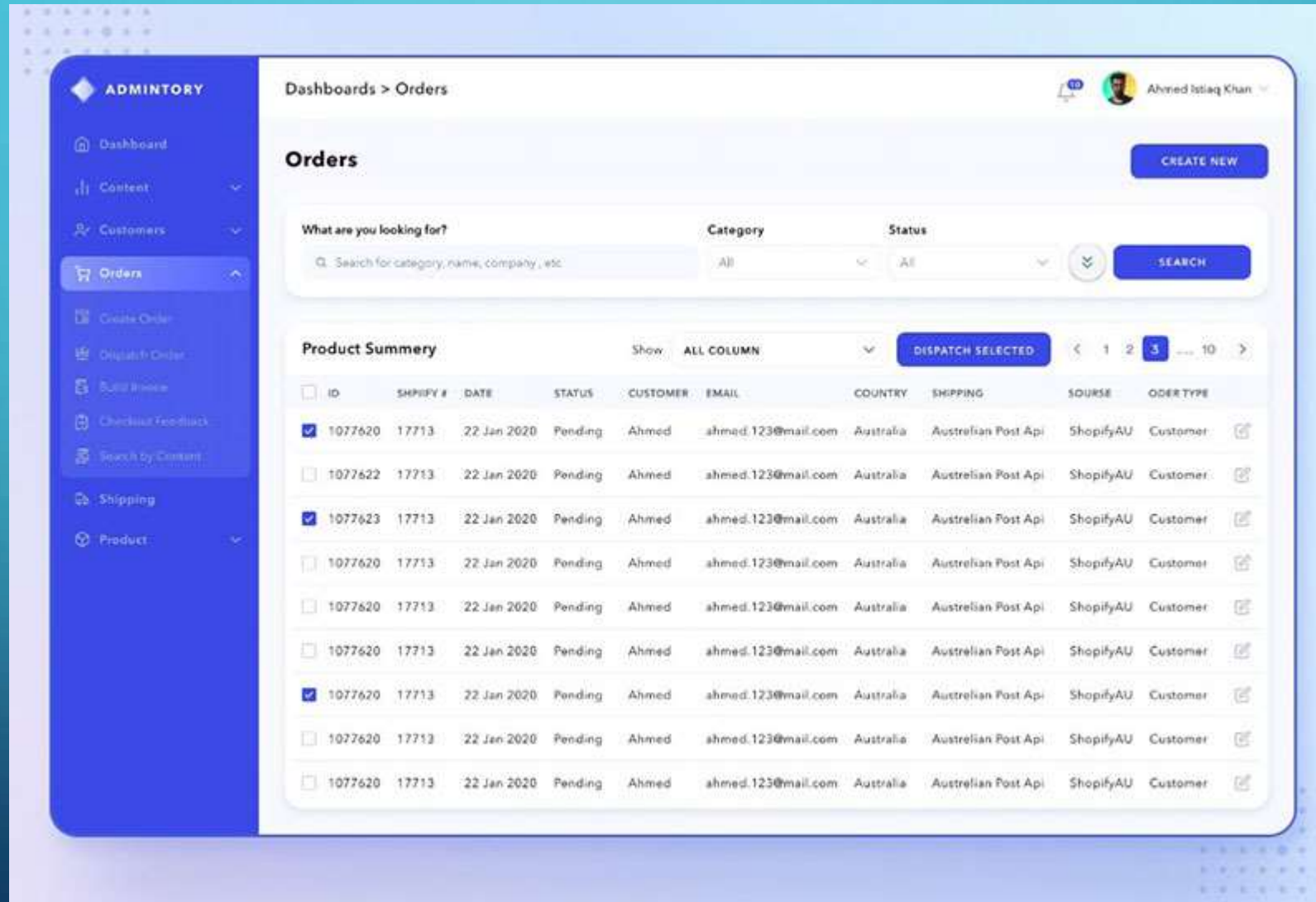
- **System justifications**

- The solution needs access from any computer and use the most popular web browsers.
- Minimal setup required to access new system by using a web-based application.
- Compatibility issues may arise if the standalone application has not been designed for multiple systems in mind, that is why a web-based application was chosen instead.

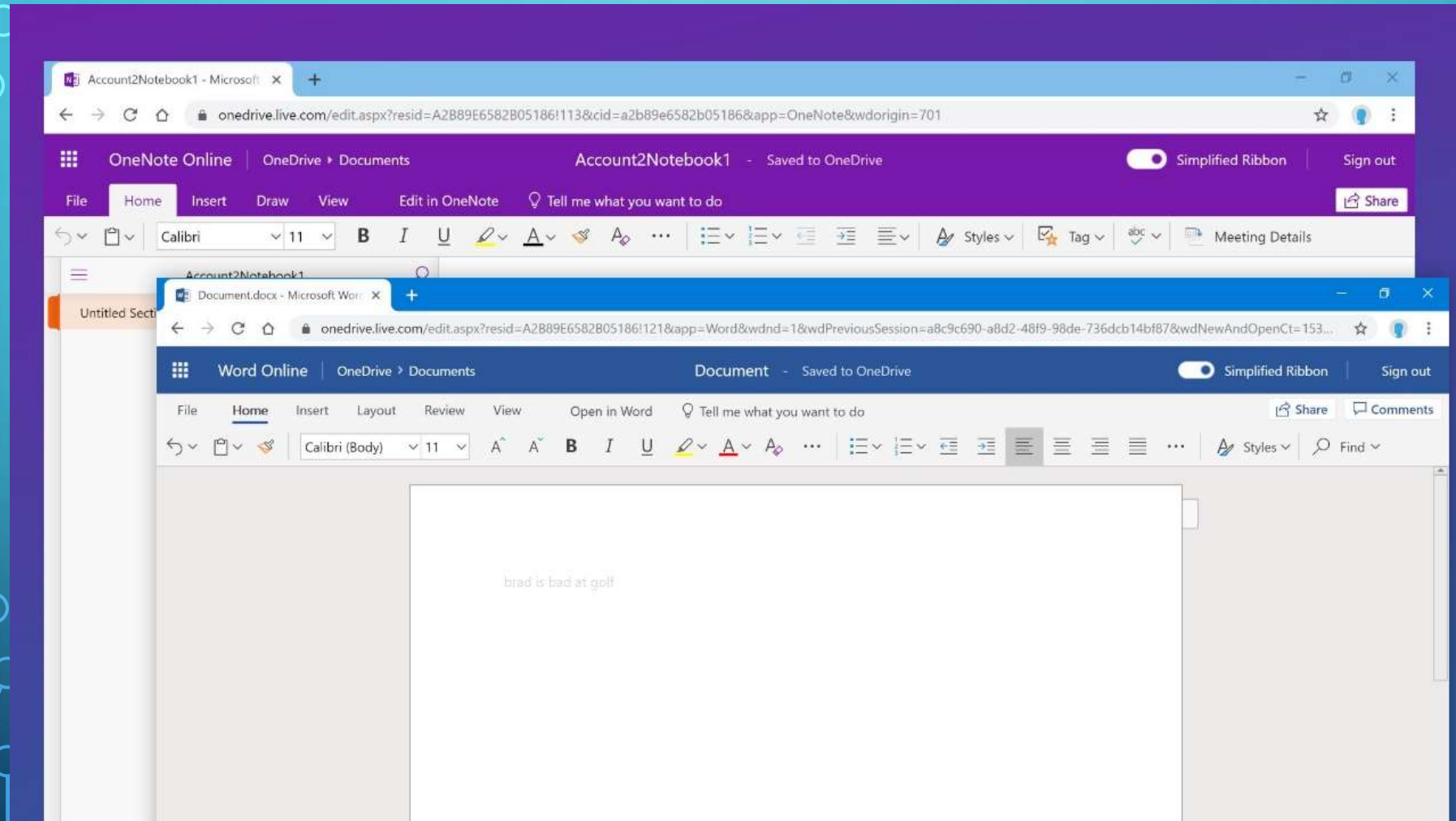


DESIGN IDEAS

UI DESIGN INSPIRATION



UI DESIGN INSPIRATION



UI DESIGN INSPIRATION

transfers4free

Search

+

Dashboard

Accounts

Customers

Card s

Transaction s

Reports

Customer Support

User Management

More

Account name	Type	Account number	CCY	Balance	Last Transfer	Trustworthiness	Status	
☒ HUA HAI IMP.AND EXP. TRADE CO — USD	Business	327732128333	USD	88338.93	10 Dec 2017	Perfect	Active	...
☒ David Washington — EUR	Private	312036709700	EUR	39090.47	10 Oct 2017	Sufficient	Active	...
☐ Victoria Padilla — EUR	Private	328254631524	EUR	21194.49	26 Oct 2017	Sufficient	Active	...
☐ Rachel Foster — USD	Private	220480352306	USD	42925.39	02 Dec 2017	Sufficient	Active	...
☐ Isabel Wilkins — PLN	Private	004213396244	PLN	45129.07	02 Sep 2017	Perfect	Active	...
☐ Eula Glover — EUR	Private	061061929124	EUR	42557.39	12 Dec 2017	Un sufficient	Active	...
☐ Teresa May — GBP	Private	449487540309	GBP	36228.32	27 Apr 2017	New	Active	...
☐ Luella Kennedy — CHF	Private	615596453641	CHF	66967.8	05 Aug 2017	Sufficient	Active	...
☐ Leo Ruiz — USD	Private	811550438357	USD	86654.77	30 Oct 2017	Sufficient	Active	...
☐ Lena Greene — USD	Private	710493038071	USD	55290.8	03 Apr 2017	Checking	Disabled	...

☐ 2 accounts selected

Deactivate

Set status

Add to report

WIREFRAME CONCEPT

A wireframe concept of a web application interface. The layout is divided into a header, a sidebar, a main content area, and a right-hand action panel.

Header:

- Logo
- Company Name here
- Sign out

Sidebar (Left):

- Customers
- Employees
- Jobs
- Payments
- [Empty box]

Main Content Area (Table):

ID	Forename	Surname	Mobile	Email
[Empty table body]				

Right-hand Action Panel:

- Add
- Edit
- Delete

CURRENT BUSINESS WEBSITE

