

Database Design & Development

- 1a Greenhands wishes to create a database to store its staff and job details. Complete the job details in the analysis of inputs table below: (3 marks)

Staff details:	Job details:
Staff ID Staff Forename Staff Surname Address Top Skill Customer Rating	Name Address Post Code Contact telephone number Task

- 1b Complete the data dictionary for the Staff entity. (5 marks)

Entity name: Staff					
Attribute name	Key	Type	Size	Required	Validation
staffID	PK	text	5	Y	length = 5
forename		text	20	Y	
surname		text	20	Y	
address		text	50	Y	
topSkill		text	5	Y	Restricted choice (lawn mower , Hedge trimmer , weeds)
custRating		number		N	Restricted choice (1,2,3,4,5,6,7,8,9,10)

- ◆ Check your answers to part A carefully, as it cannot be returned after you hand it in.
- ◆ When you are ready, hand it in to your teacher or lecturer and collect part B.

Table: Job

Page: 1

Properties

AlternateBackShade:	95	AlternateBackThemeColorIn	1
AlternateBackTint:	100	BackShade:	100
BackTint:	100	DatasheetForeThemeColorIn	0
DatasheetGridlinesThemeCol	3	DateCreated:	09/02/2018 09:44:06
DefaultView:	2	DisplayViewsOnSharePointSi	1
FilterOnLoad:	False	GUID:	{guid {8EF09F07-699C-46F9-98B4-198FC6270E90}}
HideNewField:	False	LastUpdated:	09/02/2018 10:00:56
NameMap:	Long binary data	OrderByOn:	False
OrderByOnLoad:	True	Orientation:	Left-to-Right
PublishToWeb:	1	ReadOnlyWhenDisconnected	False
RecordCount:	1	ThemeFontIndex:	1
TotalsRow:	False	Updatable:	True

Columns

Name	Type	Size
jobID	Long Integer	4
AggregateType:	-1	
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
CurrencyLCID:	0	
DataUpdatable:	False	
DecimalPlaces:	Auto	
DisplayControl:	Text Box	
GUID:	{guid {7A09A4C6-D179-4E50-A811-924BD3988F18}}	
OrdinalPosition:	0	
Required:	True	
ResultType:	0	
SourceField:	jobID	
SourceTable:	Job	
TextAlign:	General	
ValidationText:	Job ID is required	
jobDate	Date With Time	8
AggregateType:	-1	
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
CurrencyLCID:	0	
DataUpdatable:	False	
Format:	Short Date	

Table: Job			Page: 2
GUID:	{guid {B42F3F05-AF24-4D69-8C2E-F531F1871BE6}}		
IMEMode:	0		
IMESentenceMode:	3		
OrdinalPosition:	1		
Required:	True		
ResultType:	0		
ShowDatePicker:	For dates		
SourceField:	jobDate		
SourceTable:	Job		
TextAlign:	General		
ValidationText:	Job Date is required		
jobTime		Date With Time	8
AggregateType:	-1		
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Fixed Size		
CollatingOrder:	General		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
CurrencyLCID:	0		
DataUpdatable:	False		
Format:	Short Time		
GUID:	{guid {86E587EE-369D-41ED-B97D-95D8AB1AE8CA}}		
IMEMode:	0		
IMESentenceMode:	3		
OrdinalPosition:	2		
Required:	True		
ResultType:	0		
ShowDatePicker:	For dates		
SourceField:	jobTime		
SourceTable:	Job		
TextAlign:	General		
ValidationRule:	[jobTime]>=#12/30/1899 9:0:0# And <=#12/30/1899 18:0:0#		
ValidationText:	Job time must be between 9AM and 6PM		
custName		Short Text	40
AggregateType:	-1		
AllowZeroLength:	False		
AppendOnly:	False		
Attributes:	Variable Length		
CollatingOrder:	General		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
CurrencyLCID:	0		
DataUpdatable:	False		
DisplayControl:	Text Box		
GUID:	{guid {80A5E7E4-AF5A-45E8-9212-A4FBC1A3E93F}}		
IMEMode:	0		
IMESentenceMode:	3		
OrdinalPosition:	3		
Required:	True		
ResultType:	0		

Table: Job	SourceField: custName		Page: 3
	SourceTable: Job		
	TextAlign: General		
	UnicodeCompression: True		
	ValidationText: Name is required		
custAddress		Short Text	50
	AggregateType: -1		
	AllowZeroLength: False		
	AppendOnly: False		
	Attributes: Variable Length		
	CollatingOrder: General		
	ColumnHidden: False		
	ColumnOrder: Default		
	ColumnWidth: Default		
	CurrencyLCID: 0		
	DataUpdatable: False		
	DisplayControl: Text Box		
	GUID: {guid {96342314-7ED9-423A-9153-B2F2E2C43B52}}		
	IMEMode: 0		
	IMESentenceMode: 3		
	OrdinalPosition: 4		
	Required: True		
	ResultType: 0		
	SourceField: custAddress		
	SourceTable: Job		
	TextAlign: General		
	UnicodeCompression: True		
	ValidationText: Address is required		
custPostcode		Short Text	8
	AggregateType: -1		
	AllowZeroLength: False		
	AppendOnly: False		
	Attributes: Variable Length		
	CollatingOrder: General		
	ColumnHidden: False		
	ColumnOrder: Default		
	ColumnWidth: Default		
	CurrencyLCID: 0		
	DataUpdatable: False		
	DisplayControl: Text Box		
	GUID: {guid {9211012D-52A8-4856-8508-E42C7B0FA109}}		
	IMEMode: 0		
	IMESentenceMode: 3		
	OrdinalPosition: 5		
	Required: True		
	ResultType: 0		
	SourceField: custPostcode		
	SourceTable: Job		
	TextAlign: General		
	UnicodeCompression: True		
	ValidationText: Postcode is required		
phoneNo		Short Text	11

Table: Job Page: 4

```

AggregateType: -1
AllowZeroLength: True
AppendOnly: False
Attributes: Variable Length
CollatingOrder: General
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
CurrencyLCID: 0
DataUpdatable: False
DisplayControl: Text Box
GUID: {guid {7D2FD2F6-C9B6-4B72-9642-8D6A60249BE0}}
IMEMode: 0
IMESentenceMode: 3
OrdinalPosition: 6
Required: False
ResultType: 0
SourceField: phoneNo
SourceTable: Job
TextAlign: General
UnicodeCompression: True
    
```

task Short Text 12

```

AggregateType: -1
AllowMultipleValues: False
AllowValueListEdits: True
AllowZeroLength: False
AppendOnly: False
Attributes: Variable Length
BoundColumn: 1
CollatingOrder: General
ColumnCount: 1
ColumnHeads: False
ColumnHidden: False
ColumnOrder: Default
ColumnWidth: Default
ColumnWidths: 1440
CurrencyLCID: 0
DataUpdatable: False
DisplayControl: Combo Box
GUID: {guid {C9A240B0-B92E-4451-A0BF-7891D0E8ACF5}}
IMEMode: 0
IMESentenceMode: 3
LimitToList: True
ListRows: 16
ListWidth: 1440twip
OrdinalPosition: 7
Required: True
ResultType: 0
RowSource: "Lawn Mowed";"Hedge Cut";"Weeds Pulled"
RowSourceType: Value List
ShowOnlyRowSourceValues: False
SourceField: task
SourceTable: Job
TextAlign: General
    
```

Table: Job			Page: 5
	UnicodeCompression:	True	
	ValidationText:	Task is required	
	staffID	Short Text	5
	AggregateType:	-1	
	AllowMultipleValues:	False	
	AllowValueListEdits:	True	
	AllowZeroLength:	False	
	AppendOnly:	False	
	Attributes:	Variable Length	
	BoundColumn:	1	
	CollatingOrder:	General	
	ColumnCount:	1	
	ColumnHeads:	False	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	ColumnWidths:	1440	
	CurrencyLCID:	0	
	DataUpdatable:	False	
	DisplayControl:	Combo Box	
	GUID:	{guid {CDFD0C74-B763-4B25-813B-EF950522B0BA}}	
	IMEMode:	0	
	IMESentenceMode:	3	
	LimitToList:	False	
	ListRows:	16	
	ListWidth:	1440twip	
	OrdinalPosition:	8	
	Required:	True	
	ResultType:	0	
	RowSource:	SELECT [staff],[staffID] FROM staff;	
	RowSourceType:	Table/Query	
	ShowOnlyRowSourceValues:	False	
	SourceField:	staffID	
	SourceTable:	Job	
	TextAlign:	General	
	UnicodeCompression:	True	
	ValidationText:	Staff ID is required	

Relationships

staffJob



Attributes: Enforced, Cascade Deletes
 RelationshipType: One-To-Many

Table Indexes

Table: Job Page: 6

custPostcode	1
Clustered:	False
DistinctCount:	1
Foreign:	False
IgnoreNulls:	False
Name:	custPostcode
Primary:	False
Required:	False
Unique:	False
Fields:	
custPostcode	Ascending
jobID	1
Clustered:	False
DistinctCount:	1
Foreign:	False
IgnoreNulls:	False
Name:	jobID
Primary:	False
Required:	False
Unique:	False
Fields:	
jobID	Ascending
PrimaryKey	1
Clustered:	False
DistinctCount:	1
Foreign:	False
IgnoreNulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	
jobID	Ascending
staffID	1
Clustered:	False
DistinctCount:	1
Foreign:	False
IgnoreNulls:	False
Name:	staffID
Primary:	False
Required:	False
Unique:	False
Fields:	
staffID	Ascending
staffJob	1
Clustered:	False
DistinctCount:	1
Foreign:	True
IgnoreNulls:	False
Name:	staffJob
Primary:	False
Required:	False
Unique:	False

Table: Job

Fields:
staffID

Ascending

Page: 7

User Permissions

admin

Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Group Permissions

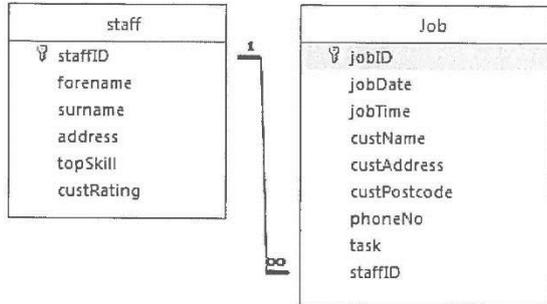
Admins

Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Users

Delete, Read Permissions, Set Permissions, Change Owner, Read Definition, Write Definition, Read Data, Insert Data, Update Data, Delete Data

Job table relationships:



Job Table fields:

Field Name	Data Type
jobID	Number
jobDate	Date/Time
jobTime	Date/Time
custName	Short Text
custAddress	Short Text
custPostcode	Short Text
phoneNo	Short Text
task	Short Text
staffID	Short Text

JobID validation

Format	Short Date
Input Mask	
Caption	
Default Value	
Validation Rule	Len({jobDate})>0
Validation Text	Job Date is required
Required	Yes
Indexed	No
IME Mode	No Control
IME Sentence Mode	None
Text Align	General
Show Date Picker	For dates

jobTime validation

Format	Short Time
Input Mask	
Caption	
Default Value	
Validation Rule	[jobTime]>=#09:00:00# And <=#18:00:00#
Validation Text	Job time must be between 9AM and 6PM
Required	Yes
Indexed	No
IME Mode	No Control
IME Sentence Mode	None
Text Align	General
Show Date Picker	For dates

custName validation

Field Size	40
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	Len([custName])>0
Validation Text	Name is required
Required	Yes
Allow Zero Length	No
Indexed	No
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

custAddress validation

Field Size	50
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	Len([custAddress])>0
Validation Text	Address is required
Required	Yes
Allow Zero Length	No
Indexed	No
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

custPostcode validation

Field Size	8
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	Len([custPostcode])>0
Validation Text	Postcode is required
Required	Yes
Allow Zero Length	No
Indexed	Yes (Duplicates OK)
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

phoneNo validation

Field Size	11
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	No
Allow Zero Length	Yes
Indexed	No
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

Task validation

Field Size	12
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	Len([task])>0
Validation Text	Task is required
Required	Yes
Allow Zero Length	No
Indexed	No
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

staffID validation

Field Size	5
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	Len([staffID])>0
Validation Text	Staff ID is required
Required	Yes
Allow Zero Length	No
Indexed	Yes (Duplicates OK)
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

StaffID lookup

Display Control	Combo Box
Row Source Type	Table/Query
Row Source	SELECT [staff].[staffID] FROM staff;

SQL query

Updated value

DS021 Derek Strimmer 99 Willow Way, Falkirk, FA87 6FE

SQL code

```
1 UPDATE
2   "staff"
3 SET
4   `address` = "99 Willow Way, Falkirk, FA87 6FE"
5 WHERE
6   staffID="DS021"
```

Software design and Development

Task 2: software design and development

- 2a Using the program analysis and design, implement the program in a language of your choice. Ensure the program matches the structure diagram provided. (15 marks)

Print evidence of your program code.

- 2b Your program should be tested to ensure it produces different signal patterns correctly.

Complete the table below to create one set of test data that will produce the expected output for the signal pattern shown.

(2 marks)

Type of test	User Input	Expected output for signal pattern	Actual output
Normal	reading 1	68	Signal pattern is: MPSPS Attach printouts of inputs and outputs as evidence.
	reading 2	9	
	reading 3	90	
	reading 4	8	
	reading 5	91	

You must demonstrate that your program correctly outputs the signal pattern and the rounded readings.

Print evidence of inputs and outputs to show that you have completed the test.

- 2c Your program should be tested to ensure that each signal strength character is correctly assigned as S, M or P. Six extreme test values are required to test this fully.

State the six test data values required:

(3 marks)

Extreme 1 80
 Extreme 2 30
 Extreme 3 29
 Extreme 4 81
 Extreme 5 0
 Extreme 6 100

2d With reference to your code, evaluate your program by commenting on the following:

Fitness for purpose (1 mark)

writes the signal pattern, the same order the results got taken

Where your code demonstrates efficient use of programming constructs (1 mark)

The code uses a loop to make it faster, therefore less time consuming

Robustness of your completed program (1 mark)

The code is a good and strong structure having all things connected a variables set properly and are fit for use

Readability of your code (2 marks)

Use of white space separates the unmarked codes, and internal commentary is used to describe the actions verbally in humane way.

```
#setting the values
valueS = "S"
valueP = "P"
valueM = "M"
number = ""
i = "Reading: "
reading = ""

#start of the loop
for loop in range (5):
    signal = float(input("please enter the strength percentage of the signal: "))
    signalstr = str(input("please enter the strength percentage of the signal again: "))

#making sure the correct data is entered
    while signal < 0 or signal > 100:
        print("the percentage is wrong")

#checking for type of signal
    if signal > 80:
        number += valueS
        string = i + signalstr
        reading += string
        reading += " . "

    if signal <30:
        number += valueP
        p += 1
        string = i + signalstr
        reading += string
        reading += " . "

    if signal <= 80 and signal >= 30:
        number += valueM
        string = i + signalstr
        reading += string
        reading += " . "

#outputting the results
print("All readings are being presented in the order you entered")
print(reading)

print(number)

please enter the strength percentage of the signal: 68
please enter the strength percentage of the signal again: 68
please enter the strength percentage of the signal: 9
please enter the strength percentage of the signal again: 9
please enter the strength percentage of the signal: 90
please enter the strength percentage of the signal again: 90
please enter the strength percentage of the signal: 8
please enter the strength percentage of the signal again: 8
please enter the strength percentage of the signal: 91
please enter the strength percentage of the signal again: 91
All readings are being presented in the order you entered
Reading: 68 . Reading: 9 . Reading: 90 . Reading: 8 . Reading: 91 .
MPSPS
>>> |
```

Web Design and Development

Task 3: web design and development

Grieve Crafts builds eco-friendly garden products. They wish to create a web page with the following content:

- ◆ a coloured top section which includes the company name
- ◆ a coloured middle section which includes a heading and short paragraph titled "About our Company"
- ◆ a coloured bottom section which include a heading, three photographs showing their most popular product being built and descriptions to accompany the photographs
- ◆ an external link to a web page about their wood source.

3a State two functional requirements for the web page.

Functional requirement 1 (1 mark)

Must be able to click the link and be taken to the "FOR MORE INFORMATION" page

Functional requirement 2 (1 mark)

Display images :
Display the 3 images provided in place they are meant to be.

Assesment task

web design and development

HTML file

```
<!DOCTYPE html>
<html>
<head>
<title> GrieveCrafts-Home Page </title>
<link rel="stylesheet" href="stylesheet.css">
</head>

<section>
<p><h1> Grieve Crafts </h1></p>
</section>

<section>
<p><h2> About our company </h2>
Formed in 2016, Grieve Crafts is an enviromentally-friendly
company whose products are all made from recycled wood </p>
</section>

<section>
<p><h2> Our Best seller </h2>
Built from recycled <u> wooden pallets </u> our exclusive wood
shed is available at a discounted price of £235 </p>


<p> Starting Point: Dismantle four or five old pallets.</p>


<p> Halfway Pont: The basic structure is assembled. </p>


<p> Finishing Point: The finished, painted product </p>

<p><a href="https://en.wikipedia.org/wiki/Pallet">FOR MORE INFORMATION</a></p>
```

CSS file

```
body {  
  background-color: LightBlue;  
}  
  
h1 {  
  background-color: DarkRed;  
  padding: 24px;  
  color: white;  
  font-family: helvetica;  
  font-size: 24px;  
  text-align: right;  
}  
  
h2 {  
  color: black;  
  font-family: helvetica ;  
  font-size: 18px;  
}  
  
p {  
  color: black;  
  font-family: helvetica;  
  font-size: 12px;  
}  
  
section{  
  background-color: pink;  
}
```

Web Page in Web Browser

The screenshot shows a web browser window with the following content:

- Browser Tab:** GrieveCrafts-Home Page x
- Address Bar:** file:///wac-file/
- Page Title:** %20Assignment/Task%203%20Web%20Design%20... (partially obscured)
- Header:** Grieve Crafts
- Section 1: About Our Company**

Formed in 2016, Grieve Crafts is an environmentally-friendly company whose products are all made from recycled wood
- Section 2: Our Best Seller**

Built from recycled wooden pallets, our exclusive wood shed is available at a discounted price of £235
- Step 1:** 

Starting Point: Disassemble four or five old pallets
- Step 2:** 

Halfway Point: The basic structure is assembled
- Step 3:** 

Finishing Point: The finished, painted product
- Footer:** [FOR MORE INFORMATION](#)