# Mrs Doubtfire's Worksheets

```
# Set up array with a list of friends in order of popularity, most popular first
myFriends=['Jim','Joe','Arthur','Fred','Henry','Josh']

@interact
# interact function with two input_boxes set up to accept strings
def best_friend(name_one=input_box(type=str), name_two=input_box(type=str)):

        #Check that both users are in myFriends and the find their positions
        if (name_one in myFriends) and (name_two in myFriends) and (name_one !=
name_two):
            print 'Hello ' + name_one + " and " + name_two
            position_of_name_one= myFriends.index(name_one)
            position_of_name_two= myFriends.index(name_two)

            #set up variables for best and less_best
            if position_of_name_one < position_of_name_two:
                best_friend = name_one
                less_best = name_two
            else:
                best_friend = name_two
                less_best = name_one

            #deliver the news
            print 'My Best Friend of you two is '+best_friend+'! sorry '+ less_best
        else:
            #Fail existence check
            print ('You must both be my Friends and have different names to use this
program')
```

| name_one | None |
| name_two | None |

```
Hello Joe and Jim
My Best Friend of you two is Jim! sorry Joe
```

```
@interact
# interact function with three input_boxes set up to accept strings as well as having
default values
def song(line_one=input_box("Baa Baa",type=str, label='Line One'),
line_two=input_box("Black Sheep",type=str, label='Line Two'),line_three=input_box('Have
you any ...',type=str, label='Line Three')):
            print line_one +" "+ line_two +" "+line_three
```

| Line One | Baa Baa |
| Line Two | Black Sheep |
| Line Three | Have you any ... |

```
Baa Baa Black Sheep Have you any ...
```

```
@interact

def money_box(pence=input_box(0,label='1 p coins',width=10),tuppence=input_box(
0,label='2p coins',width=10), fives=input_box( 0,label='5p coins',width=10),
tens=input_box(0,label='10p coins',width=10),twenties=input_box(0,label='20p
coins',width=10),fifties=input_box(0,label='50p
coins',width=10),pounds=input_box(0,label='£1 Pound
coins',width=10),two_pounds=input_box(0,label='£2 coins',width=10)):
    #You can include html to format your output
```

```
html('<h3 align=center><font color="darkred">Money Counter</font></h3>')
total=pence + 2 * tuppence + 5 * fives
total = total + 10 * tens +20 * twenties
total = total + 50 * fifties + 100 * pounds
total = total + 200 * two_pounds
print 'Total is ',total
```

| | |
|---|---|
| 1 p coins | 0 |
| 2p coins | 0 |
| 5p coins | 0 |
| 10p coins | 0 |
| 20p coins | 0 |
| 50p coins | 0 |
| £1 Pound coins | 0 |
| £2 coins | 0 |

**Money Counter**

Total is  13226

```
@interact
def discount(spend=input_box(0,label='Spend',width=10)):
    #You can include html to format your output
    html('<h3 align=center><font color="darkred">Discount = 10% for Spend <= £10, 20%
for Spend > £10</font></h3>')

    if spend <= 10:
        discount = "10%"
        discount_amount= 0.1 * spend

    else:
        discount = "20%"
        discount_amount= 0.2 * spend

    to_pay = spend + discount_amount
    print 'Discount percentage saving is ', discount
    print '%s%.2f'%('Discount earned is £',discount_amount)
    print '%s%.2f'%('Price to Pay £',spend-discount_amount)
```

Spend  0

**Discount = 10% for Spend <= £10, 20% for Spend > £10**

Discount percentage saving is  20%
Discount earned is £19.80
Price to Pay £79.20

```
@interact

def money_box(pence=input_box(0,label='1 p coins',width=10),tuppence=input_box(
0,label='2p coins',width=10), fives=input_box( 0,label='5p coins',width=10),
tens=input_box(0,label='10p coins',width=10),twenties=input_box(0,label='20p
coins',width=10),fifties=input_box(0,label='50p
coins',width=10),pounds=input_box(0,label='£1 Pound
coins',width=10),two_pounds=input_box(0,label='£2 coins',width=10)):
    #You can include html to format your output
    html('<h3 align=center><font color="darkred">Money Counter</font></h3>')
    total=pence + 2 * tuppence + 5 * fives
    total = total + 10 * tens +20 * twenties
    total = total + 50 * fifties + 100 * pounds
```

```
    total = total + 200 * two_pounds
    print '%s%.2f'%('Total is £',total/100.0)
    if total < 5000:
        print "Keep Saving!"
    else:
        print "Well Done"
```

| | |
|---|---|
| 1 p coins | 0 |
| 2p coins | 0 |
| 5p coins | 0 |
| 10p coins | 0 |
| 20p coins | 0 |
| 50p coins | 0 |
| £1 Pound coins | 0 |
| £2 coins | 0 |

**Money Counter**

```
Total is £122.48
Well Done
```

```
import time
start_time=10
#Not sure if this will be very good in Sage running on a server
for i in range (start_time,0,-1):
    print i
    time.sleep(1)
print "Blast off!"
```

```
10
9
8
7
6
5
4
3
2
1
Blast off!
```

```
@interact

def discount(spend=input_box(0,label='Spend',width=10)):
    #You can include html to format your output
    html('<h3 align=center><font color="darkred">Discount = 10% for Spend <= £10, 20%
for Spend > £10</font></h3>')

    if spend <= 10:
        discount = "10%"
        discount_amount= 0.1 * spend

    else:
        discount = "20%"
        discount_amount= 0.2 * spend

    to_pay = spend + discount_amount
    print 'Discount percentage saving is ', discount
    print '%s%.2f'%('Discount earned is £',discount_amount)
    print '%s%.2f'%('Price to Pay £',spend-discount_amount)
```

| | |
|---|---|
| Spend | 0 |

**Discount = 10% for Spend <= £10, 20% for Spend > £10**

Discount percentage saving is   20%
Discount earned is £15.58
Price to Pay £62.30

```
@interact

def times_table(table=slider(0,12,1)):

    for i in range (1,13):
        print i," X ",table," = ",i*table
```

table  [            ]          0

```
 1  X  6  =  6
 2  X  6  =  12
 3  X  6  =  18
 4  X  6  =  24
 5  X  6  =  30
 6  X  6  =  36
 7  X  6  =  42
 8  X  6  =  48
 9  X  6  =  54
10  X  6  =  60
11  X  6  =  66
12  X  6  =  72
```

```
import random

@interact

def Dice(dice=slider(2,24,1),button=selector(["Throw Dice"],label='',buttons=True)):
    print random.randint(1,dice)
```

dice  [            ]          2

[ Throw Dice ]

15

```
dummy=0
@interact
# interact function with two input_boxes set up to accept strings
def quiz(name=input_box("name",type=str,  label="Type Your Name
here",width=20),score=input_box("",type=str,label="Score",width=20),button=selector(["Start
Quiz"],label='Press to Start',buttons=True)):
    print "Welcome to the Quiz ",name
    print "Quiz Q1: What is the Capital of Australia"
    print "A) Canberra"
    print "B) Melbourne"
    print "C) Brisbane"
    print "D) Sydney"
    print "Enter your Answer in the answer box"

#unfinished program
```

Type Your Name here [ name           ]

Score [                ]

Press to Start   [ Start Quiz ]