



Java Lab

Week 4

IMPORTANT! Save all your work to a safe location such as oneDrive.

Create a folder for SDPD into which you will save all your work for this module, arranged how you wish. Ideally you should create a folder each week for your lab exercises. Note that you should create a separate file for each exercise.

This lab covers:

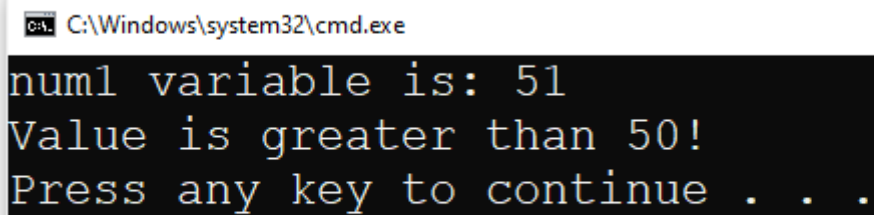
if, else, else-if Statements

Exercise 1

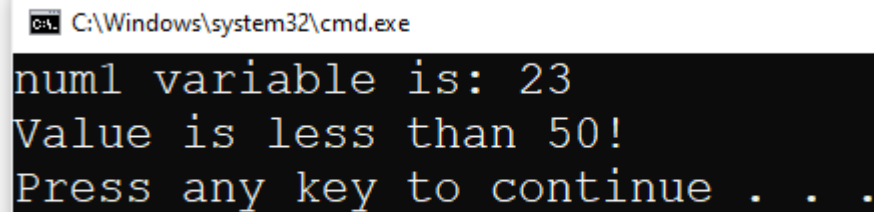
Goal: Create a program in Java outlined below, using an if and else statement as required.

Create a new file called JavalfElse1 for this exercise. Create a program using an if and else statement that will output the following based on the value of an int variable named num1:

If the value of num1 is greater than 50, the program outputs to the console “Value is greater than 50!”, otherwise, it outputs a line stating, “Value is less than 50!”. Test your program by changing the value of num1 to ensure a range of values work as expected.



```
C:\Windows\system32\cmd.exe  
num1 variable is: 51  
Value is greater than 50!  
Press any key to continue . . .
```



```
C:\Windows\system32\cmd.exe  
num1 variable is: 23  
Value is less than 50!  
Press any key to continue . . .
```

Exercise 2

Goal: Create a program in Java outlined below, using if, else-if and else statements as required.

Create a new file called JavalfElse2 for this exercise. Create a program using an if, an else-if and else statement that will output the following based on the value of a double variable named temperature.

If the value of temperature is greater than 25, the program outputs to the console "It's hot outside!", if it's lower than 5, the program outputs to the console "It's cold outside!" otherwise, it outputs a line stating, "It's okay outside!". Test your program by changing the temperature values to ensure a range of values work as expected.

```
C:\Windows\system32\cmd.exe
Temperature is: 23.0
It's okay outside!
Press any key to continue . . .
```

```
C:\Windows\system32\cmd.exe
Temperature is: 29.0
It's hot outside!
Press any key to continue . . .
```

```
C:\Windows\system32\cmd.exe
Temperature is: -4.0
It's cold outside
Press any key to continue . . .
```

Exercise 3

Goal: Create a program in Java outlined below, using if, else-if and else statements as required.

Create a new file called JavalfElse3 for this exercise. Create a program using an if, and multiple else-if and else as required that will output the following based on the value of an int variable named day.

If variable day value is 1, console output will be "Monday", if variable day value is 2, console output will be "Tuesday", etc.

Exercise 4

Goal: Create a program in Java outlined below, using an if and else-if statement as required.

Create a new file called JavalfElse4 for this exercise, your program should use an if/else-if statement as required. Prompt the user to input an integer number (using Scanner). This number input should be stored to a variable called userNumber. Your program should determine if the number input by the user is either positive or negative and output to the console a notification stating "Number entered is positive" or "Number entered is negative" accordingly.

C:\Windows\system32\cmd.exe

```
Enter a number: 453
The number you entered is positive
Press any key to continue . . .
```

C:\Windows\system32\cmd.exe

```
Enter a number: -54
The number you entered is negative
Press any key to continue . . .
```

Exercise 5

Goal: Create a program in Java outlined below, using if, else-if and else statements as required.

Create a new file called JavalfElse5 for this exercise, your program should use an if/else-if/else statement as required. Prompt the user to input two numbers (firstNum and secondNum). Your program should determine which number is bigger – the first number entered, or the second number entered, and output to the console a notification stating which number is bigger.

C:\Windows\system32\cmd.exe

```
Enter first number: 23
Enter second number: 12
The first number is greater than the second number
Press any key to continue . . .
```

C:\Windows\system32\cmd.exe

```
Enter first number: 23
Enter second number: 1256
The second number is greater than the second number
Press any key to continue . . .
```

C:\Windows\system32\cmd.exe

```
Enter first number: 344
Enter second number: 344
The numbers are equal!
Press any key to continue . . .
```

Exercise 6

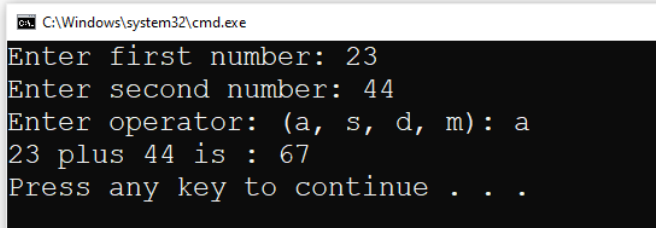
Goal: Create a program in Java outlined below, using an if and else-if statement as required.

Create a new file called JavalfElse6 for this exercise, your program should use an if/else-if statement as required. Prompt the user to input two numbers (using Scanner). The numbers entered should be stored to variables called firstNum and secondNum. Your program should also prompt the user to enter an operator as a character – 'a' for addition, 's' for subtraction, 'd' for division and 'm' for multiplication, which will be stored into a variable called operator, eg:

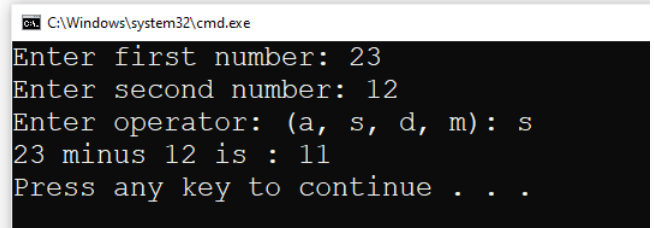
```
System.out.print("Enter operator: (a, s, d, m): ");  
operator = keyboard.next().charAt(0);
```

Above code shows method to store character input via scanner.

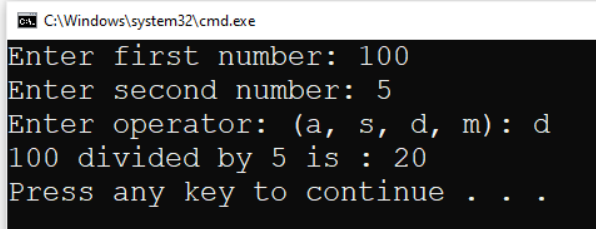
The program should then output the result based on the choice of operator.



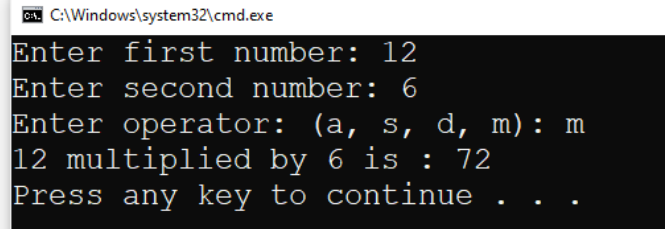
```
C:\Windows\system32\cmd.exe  
Enter first number: 23  
Enter second number: 44  
Enter operator: (a, s, d, m): a  
23 plus 44 is : 67  
Press any key to continue . . .
```



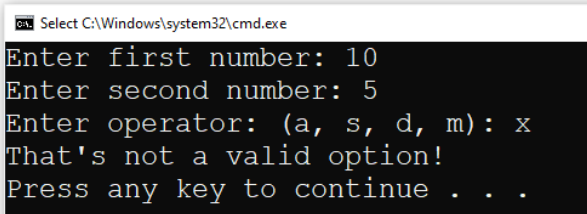
```
C:\Windows\system32\cmd.exe  
Enter first number: 23  
Enter second number: 12  
Enter operator: (a, s, d, m): s  
23 minus 12 is : 11  
Press any key to continue . . .
```



```
C:\Windows\system32\cmd.exe  
Enter first number: 100  
Enter second number: 5  
Enter operator: (a, s, d, m): d  
100 divided by 5 is : 20  
Press any key to continue . . .
```



```
C:\Windows\system32\cmd.exe  
Enter first number: 12  
Enter second number: 6  
Enter operator: (a, s, d, m): m  
12 multiplied by 6 is : 72  
Press any key to continue . . .
```



```
Select C:\Windows\system32\cmd.exe  
Enter first number: 10  
Enter second number: 5  
Enter operator: (a, s, d, m): x  
That's not a valid option!  
Press any key to continue . . .
```

Amend your program so that it will still work even if the user inputs capital letters, eg, it should work if A or a is entered.

Exercise 7

Goal: Create a program in Java outlined below, using an if and else-if statement as required.

Create a new file called JavalfElse7 for this exercise, your program should use an if/else-if statement as required. This program will output a grade (such as A, B, C, D...) depending on the percentage score entered. Prompt the user to input a number between 0 and 100. The number entered should be stored to variables called score and should allow for a decimal place. The program should then output the following, based on the number entered

Below 40 - E

40 to 49 - D

50 to 59 - C

60 to 69 - B

Greater than 70 – A

Any other value entered should state that an incorrect value was entered.

```
C:\Windows\system32\cmd.exe
```

```
Enter score number: 25
Score of 25 is less than 40. Grade is E
Press any key to continue . . .
```

```
C:\Windows\system32\cmd.exe
```

```
Enter score number: 41
Score of 41. Grade is D
Press any key to continue . . .
```

```
C:\Windows\system32\cmd.exe
```

```
Enter score number: 55
Score of 55. Grade is C
Press any key to continue . . .
```

```
C:\Windows\system32\cmd.exe
```

```
Enter score number: 65
Score of 65. Grade is B
Press any key to continue . . .
```

C:\Windows\system32\cmd.exe

```
Enter score number: 72  
Score of 72. Grade is A  
Press any key to continue . . .
```

C:\Windows\system32\cmd.exe

```
Enter score number: 5545  
An incorrect score was entered  
Press any key to continue . . .
```

C:\Windows\system32\cmd.exe

```
Enter score number: -55  
An incorrect score was entered  
Press any key to continue . . .
```