

# Starter - Selection Statements

These tasks are designed to refresh the reading and research you have undertaken at home prior to this lesson. If you have not completed the R&R assignment then please speak to your teacher before attempting these exercises.

## Relational and Boolean Operators

Relational and boolean operators are used to construct selection statements. Refresh your knowledge of these concepts by attempting the below tasks.

### Task 1

Match each relational operator to its description.

Operator	Description
==	equal to
<	less than
>	greater than
!=	not equal to
<=	less than or equal to
>=	greater than or equal to

### Task 2

Look at each of the following expressions, without using a computer what would they evaluate to?

#### Variable Value

test_score	54
age	18

Expression	Result
5 > 3	True
test_score < 12	False
4 != test_score	True
age == 17	False
test_score > 50 and age > 12	True
not test_score > 50	False

## Debugging Code

Debugging code is an important skill you must develop. The below will introduce you to **syntax**, **run-time** and **logical errors** that can occur in your code.

## Task 1

The code shown below contains some errors. Annotate the code to show where the errors occur.

```
#test grading program
test_score = input("Please enter your test score: ")
if test_score > 40:
    print("E grade")
elif test_score > 50:
    print("D grade")
elif test_score > 60:
    print("C grade")
elif test_score > 70:
    print("B grade")
elif test_score > 80:
    print("A grade")
else:
    print("Fail")
```

The input statement will be entered as a string.

## Task 2

Now, load the selection\_errors.py Python file and attempt to run it - note down any error messages you encounter and attempt to explain them.

Error Message	Explanation
Type Error	The wrong data type
EOL Error	Missing quote mark

## Task 3

Assuming that you have corrected the errors in selection\_errors.py, run the program and enter a test score which will give an A grade. For example, 94. What happens? Use the space below for your explanation.

### Explanation

There are three types of error in selection\_errors.py:

1. Syntax errors
2. Run-time errors
3. Logical errors

In the space below develop a definition of each type and state the type of each error in Tasks Two and Three.

## Task 4

Please read page 95 of the AS Computing textbook and then use the space below for your definitions.

Error	Definition
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Syntax error	
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Run-time error	
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Logical error	
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## Task 5

Indicate whether you think the errors in **Task 2 and 3** where syntax, run-time or logical errors.

Error	Type
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Task 2 (error message 1)	
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Task 2 (error message 2)	
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Task 3 error	
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## Summary

In this section you have debugged a selection statement and discovered that there are three types of errors: syntax, run-time and logical. You will encounter these errors repeatedly in your code so it is vital that you have an appreciation of the differences between them.