Selection in an algorithm | Part B

Many languages use select case or switch statements, for example Microsoft Visual Basic, C #, Java, Pascal and C in fact one of the only languages that doesn't is Python. Python handles multiple cases in a different way and we'll look at that in a moment, but if we want to look at a typical construction using multiple cases I can show you.

Here we have a typical select case statement, we start with the keyword - select case, and then in brackets a value, this is what the user's going to enter so in a program I'll show you in a moment that will actually be their birth month. We then have the multiple cases, so in the case of the birth month they might say January, so this is the first case, and then beneath it we'll have a section of code, so if they enter the birth month of January then that piece of code will execute and underneath it we have the second case, their birth month was February so we will do a different piece of code and then case 3 we will do something else and you could carry on having as many cases as you wanted to, and remember that each statement is being checked in turn, and if there is a match the program will execute whatever the next section of code says and if there isn't a match it just moves on to the next statement.

So let's have a look at Python, there is no select case construct instead it uses another key word to indicate additional choice options – **elif** – this is a strange word that's is a contraction of **else** and **if** which is also used in some other languages for example Microsoft Visual Basic. We can write a bank of **elif** statements and that's just what I have done with this program.

So on the screen here we have 2 variables, one for the user to enter in the month of their birth and then the second variable will tell me the birthstone that they should be wearing. So, if we have a look at the **if** and the **elif** statements, for the first one, if the user enters that their birth month is January then it will pick up on that and tell them that their birthstone is Garnet. Now I've been quite clever here because it might be that the user doesn't enter in a capital letter at the start of January, but that's OK because if we look that the whole statement it says **if** month equals January with a capital J **or** month equals January with a small j, so even if they type it in in different ways my program will still accept it and still give the right answer, even if they type in j a n instead of the full word.

Beneath the if statement we've got all the different month options so you can see the bank of **elif** statements right the way down to December, so as they enter in the month of their birth it will tell them what the correct birthstone is. So let's run that program and see how it works. And it asks me which month were you born in - so I'm going to type in December because that's when I was born, OK and it tells me that my birthstone is Turquoise and as you can see I'm actually wearing my birthstone ring.

Now it doesn't matter if I type in something silly as I did with my previous program, so I'll run it again, this time I'm going to type in just d, OK so just d, enter and it tells me that it didn't know what the month was so couldn't tell me what my birthstone was.

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