Quiz - Lecture 24

Due 23 Oct at 23:59 **Points** 5 **Questions** 5 **Available** 22 Oct at 9:10 - 23 Oct at 23:59 1 day
Time limit None **Allowed attempts** Unlimited

Take the quiz again

Attempt history

	Attempt	Time	Score
KEPT	Attempt 3	2 minutes	5 out of 5
LATEST	Attempt 3	2 minutes	5 out of 5
	Attempt 2	2 minutes	3.5 out of 5
	Attempt 1	less than 1 minute	1.08 out of 5

Score for this attempt: **5** out of 5
Submitted 22 Oct at 19:08
This attempt took 2 minutes.

Question 1 — 1 / 1 pts

What do each of the Jack OS classes contribute?

Correct!	**Math**	Provides basic mathematical (
Correct!	**String**	Implements the String type
Correct!	**Array**	Implements the Array type an
Correct!	**Output**	Handles text output to the sc
Correct!	**Screen**	Handles graphic output to the
Correct!	**Keyboard**	Handles user input from the k
Correct!	**Memory**	Handles memory operations
Correct!	**Sys**	Provides some execution-rela
Correct!	**Mouse**	This is not part of the Jack OS
Correct!	**Printer**	This is not part of the Jack OS

Correct! **Network** This is not part of the Jack OS

Correct! **Vector** This is not part of the Jack OS

Question 2

1 / 1 pts

Which of the following essential services are missing from the Jack operating system?

- Multi-tasking
- Correct! Nothing essential is missing.
- Networking
- Desktop GUI
- Virtual Memory
- Security
- Mass Storage

The Hack computer cannot implement any of these so they are not essential parts of the Jack OS.

Question 3

1 / 1 pts

Could you use the following multiply function written in Jack for all possible multiply operations?

```
int multiply(int x, int y)
{
    var int m ;

    while ( y > 0 )
    {
        let m = m + x ;
        let y = y - 1 ;
    }

    return m ;
}
```

- [ ] Yes, it can return the correct answer very quickly.

Correct!

- [x] No, it can take a very long time to execute if y is a large number.

If y is a large number it will take a very long time to finish.

- [ ] No, it does not initialise m so the answers may be wrong.
- [ ] Yes, it always returns the correct answer.

Correct!

- [x] No, it will not work if y is less than 0.

The loop assumes that y is greater than or equal to 0.

Question 4

1 / 1 pts

Multiply can be described as adding together numbers that are the result of multiplying by 2. Is it possible to efficiently implement multiply this way if it needs multiply to already be implemented?

Correct!

- [x] Yes, multiply can be implemented this way because multiplying by 2 is just adding a number to itself.
- [ ] Yes, we write multiply as a recursive function so it can call itself to multiply by 2.
- [ ] No, multiply cannot be implemented this way.
- [ ] Yes, multiply can be implemented this way if we use another multiply function to multiply by 2.

Question 5

1 / 1 pts

The Hack computer is built entirely from Nand gates. The Data Flip Flop used in memory can also be built from Nand gates arranged in mostly stable feedback loops.

If we did not have Nand gates, could the Hack computer be built using only Nor gates?

Correct!

- (●) True
- ( ) False

All logic can be build from And, Or and Not. Nand gates can build each of these and so can Nor gates. So everything built out of Nand gates could also be built out of Nor gates.

Quiz score: **5** out of 5