

Hello World (Quiz)

Donnerstag, 13. Mai 2021 13:48

Frage 1

Donnerstag, 13. Mai 2021 13:52

consider the following main function:

```
int main(int argc, char **args){  
  
    printf("%s", args[0]);  
  
}
```

what will be the output if you execute your program like:

`./myProg A B C`

Antwort:



the first string in args is always the program name (with path) itself.

Frage 2

Donnerstag, 13. Mai 2021 13:52

Given a program source as follows:

```
#include<stdio.h>
int main(int A, char** B){
    printf("%d\n", A);
    printf("%s %s\n", B[1], B[2]);
    return 0;
}
```

the program is compiled to prog.x

output of this program is:

```
4
hello world
```

How did you launch the program to get the output above?

Wählen Sie eine Antwort:

- ☐ ./prog.x 4 hello world
- ☒ ./prog.x hello world realtime



Die Antwort ist richtig.

Frage 3

Donnerstag, 13. Mai 2021 13:54

What is the output of the following program?

```
#include<stdio.h>
int main(){
    int a = 7;
    float b = a / 2;
    printf("%.2f ", b);
    printf("%.2f\n", b / 2.0);
}
```

Wählen Sie eine Antwort:

- ☐ 3.50 1.75
- ☒ 3.00 1.50
- ☐ 3.00 2.00
- ☐ error



Correct.

Frage 4

Donnerstag, 13. Mai 2021 13:55

What command do you use to make the file `./myScript.sh` executable for it's owner?

It is currently set to `"-rw-r--r--"`

you want to set it to `"-rwxr--r--"`

`chmod {your answer} ./myScript.sh`

Wählen Sie eine Antwort:

- ☐ a. `--make-executable`
- ☐ b. `-rwxr--r--`
- ☐ c. `-rw+r--r--`
- ☒ d. `744`



Correct!

Your answer is correct.

Frage 5

Donnerstag, 13. Mai 2021 13:56

Which of the following codes can you use to make your own script executable to you.

Wählen Sie eine oder mehrere Antworten:

- ☐ `chmod --executable-owner ./myScript.sh`
- ☐ `chmod o+x ./myScript.sh`
- ☐ `chmod 455 ./myScript.sh`
- ☐ `chmod g+x ./myScript.sh`
- ☒ `chmod 500 ./myScript.sh`



It might be quite restraining, but it is correct.

Your answer is correct.

Execution Times 1 (Quiz)

Sonntag, 16. Mai 2021 12:18

What header file do you need to include to use clock_gettime?

Sonntag, 16. Mai 2021 12:24

What header file do you need to include to use clock_gettime?

Wählen Sie eine oder mehrere Antworten:

- ☐ #include <sys/clock.h>
- ☐ #include <clock.h>
- ☐ #include <nanotime.h>
- ☒ #include <time.h>



Your answer is correct.

The struct timespec is storing the time in two fields:

Sonntag, 16. Mai 2021 12:25

The struct timespec is storing the time in two fields:

```
struct timespec {  
    time_t tv_sec; /* seconds */  
    long tv_nsec; /* nanoseconds */  
};
```

How many nanoseconds are in a second?

Wählen Sie eine Antwort:

- ☐ 1,000,000,000,000
- ☒ 1,000,000,000
- ☐ 1,000,000
- ☐ 1,000



Your answer is correct.

A program saves three timespecs simultaneously using different clk_id.

Sonntag, 16. Mai 2021 12:25

A program saves three timespecs simultaneously using different clk_id.

$a \leftarrow \text{CLOCK_REALTIME}$ (relative to epoch)

$b \leftarrow \text{CLOCK_PROCESS_CPUTIME_ID}$ (how long the process occupied the CPU, yet)

$c \leftarrow \text{CLOCK_THREAD_CPUTIME_ID}$ (how long the thread occupied the CPU, yet)

which of the following states is reasonable to expect?

Wählen Sie eine Antwort:

- ☒ $c < b < a$
- ☐ $a \leq b < c$
- ☐ $b < c < a$
- ☐ $b < c \leq a$



Die Antwort ist richtig.

Which of the following lines can be used to save the current time?

Sonntag, 16. Mai 2021 13:33

Which of the following lines can be used to save the current time?

Wählen Sie eine oder mehrere Antworten:

- ☐ `struct timespec myTime = clock_gettime(CLOCK_REALTIME);`
- ☐ `struct timespec myTime;`
`clock_gettime(CLOCK_REALTIME, *myTime);`
- ☐ `long myTime = clock_gettime(CLOCK_REALTIME);`
- ☒ `struct timespec myTime;`
`clock_gettime(CLOCK_REALTIME, &myTime);`



Your answer is correct.

What does WCET stand for?

Sonntag, 16. Mai 2021 13:13

What does WCET stand for?

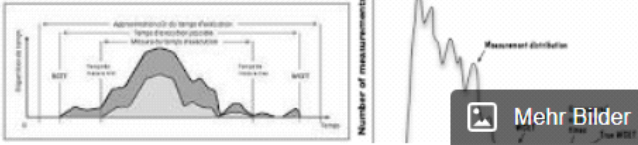
This question will be graded automatically. Please only enter the literal meaning of the acronym.

Antwort: Worst Case Execution Time



Worst Case Execution Time

Aus <https://www.google.com/search?q=WCET&og=WCET&ags=chrome..69i57j0l3j0i10i30j0i30j0i10i30j0i30l3.3794j0j7&sourceid=chrome&ie=UTF-8>



Maximale Laufzeit

Die maximale Laufzeit oder maximale Ausführungszeit gibt die längste Zeit an, die ein Computerprogramm oder Programmteil auf einer bestimmten Plattform zur Ausführung benötigen kann. Sie wird bestimmt durch: die Programmlogik, die Eingabedaten, den Compiler und die Architektur und Taktfrequenz des Ausführungsrechners. [Wikipedia](#)

What does BCET stand for?

Sonntag, 16. Mai 2021 13:13

What does BCET stand for?

This question will be graded automatically. Please only enter the literal meaning of the acronym.

Antwort:



What does ACET stand for?

Sonntag, 16. Mai 2021 13:14

What does ACET stand for?

This question will be graded automatically. Please only enter the literal meaning of the acronym.

Antwort: Average Case Execution Time



Which function call would you expect to take longer?

Sonntag, 16. Mai 2021 13:29

consider the following C code:

```
int myfunc1 (int in)
{
    int i, j = in;
    for(i=0; i <= 999; i++) j=j+i;
    return j;
}

int myfunc2 (int in)
{
    int val1, i;
    float val2, val3;
    for (i =0; i < 4500; i++)
    {
        val1 = in*in*i;
        val2 = (in+i )*( in+i )*( in+i);
        val3 = val2 / val1;
    }
    return val3;
}
```

Which function call would you expect to take longer?

Wählen Sie eine Antwort:

- ☐ myfunc1(10);
- ☐ myfunc1(10000);
- ☒ they both take the same time.



Your answer is correct.

Which function call would you expect to take longer?

Sonntag, 16. Mai 2021 13:34

consider the following C code:

```
int myfunc1 (int in)
{
    int i, j = in;
    for(i=0; i <= 999; i++) j=j+i;
    return j;
}

int myfunc2 (int in)
{
    int val1, i;
    float val2, val3;
    for (i =0; i < 4500; i++)
    {
        val1 = in*in*i;
        val2 = (in+i)*( in+i )*( in+i);
        val3 = val2 / val1;
    }
    return val3;
}
```

Which function call would you expect to take longer?

Wählen Sie eine Antwort:

- ☒ myfunc2(10);
- ☐ myfunc1(9999);
- ☐ they both take the same time.



Your answer is correct.

Which function call would you expect to take longer?

Sonntag, 16. Mai 2021 13:35

consider the following C code:

```
int myfunc1 (int in)
{
    int i, j = in;
    for(i=0; i <= 999; i++) j=j+i;
    return j;
}

int myfunc2 (int in)
{
    int val1, i;
    float val2, val3;
    for (i =0; i < 4500; i++)
    {
        val1 = in*in*i;
        val2 = (in+i )*( in+i )*( in+i);
        val3 = val2 / val1;
    }
    return val3;
}
```

Which function call would you expect to take longer?

Wählen Sie eine Antwort:

- ☒ myfunc2(0);
- ☐ myfunc1(0);
- ☐ they both take the same time.



Your answer is correct.

Execution Times 2 (Quiz)

Montag, 7. Juni 2021 10:08

Frage 1

Montag, 7. Juni 2021 10:08

Frage 1

Richtig

Erreichte
Punkte 2,0 von
2,0

Frage
markieren

On a CPU with 20 cores,
myScript.sh is launching 10 programs at the same time,

how many CPU cores are being used simultaneously by each command?

see the taskset manual page for help:

<https://linux.die.net/man/1/taskset>

taskset 7 myScript.sh	3	✓
taskset -c 10 myScript.sh	1	✓
taskset -c 0-3 myScript.sh	4	✓
taskset 3 myScript.sh	2	✓

Die richtige Antwort ist:

taskset 7 myScript.sh

→ 3,

taskset -c 10 myScript.sh

→ 1,

taskset -c 0-3 myScript.sh

→ 4,

taskset 3 myScript.sh

→ 2

Frage 2

Montag, 7. Juni 2021 10:08

Frage 2

Richtig

Erreichte
Punkte 1,0 von
1,0

Frage
markieren

<http://man7.org/linux/man-pages/man2/getppid.2.html>

https://en.wikipedia.org/wiki/Process_identifier

Which of the following statements are true?

Wählen Sie eine Antwort:

- ☐ Each executable file is assigned a unique id during compilation, which is used as pid when the generated binary is executed.
- ☐ Each Process has a unique pid which is the name of the executable file combined with the arguments it was launched with.
- ☒ Each Process has a unique pid which is a number. The number is assigned to a process at launch.

Die richtige Antwort ist:

Each Process has a unique pid which is a number. The number is assigned to a process at launch.

Frage 3

Montag, 7. Juni 2021 10:09

Frage **3**

Richtig

Erreichte
Punkte 1,0 von
1,0

🚩 Frage
markieren

What does the program "top" do?

Wählen Sie eine Antwort:

- ☐ a. Creates a new Process on top of another.
- ☐ b. Sends data to other process.
- ☒ c. Display all running processes.

Die richtige Antwort ist: Display all running processes.

Frage 4

Montag, 7. Juni 2021 10:09

Frage **4**

Richtig

Erreichte

Punkte 1,0 von
1,0

🚩 Frage
markieren

Which line would you use to save the list of currently running processes into a file processes.txt?

Wählen Sie eine Antwort:

- ☐ ps -ef & processes.txt
- ☐ top & processes.txt
- ☐ top > processes.txt
- ☒ ps -ef > processes.txt

Die richtige Antwort ist: ps -ef > processes.txt

Frage 5

Montag, 7. Juni 2021 10:09

Frage 5

Richtig

Erreichte
Punkte 1,0 von
1,0

Frage
markieren

What needs to be put in the *<missing line>* of the following shell script to launch all three programs with the value 10 as parameter?

Here you can find information about variables in the unix shell: <https://www.cyberciti.biz/faq/set-environment-variable-unix/>

```
<missing line>
./prog1 $val
./prog2 $val
./prog3 $val
```

Wählen Sie eine Antwort:

- ☐ \$val = 10
- ☒ val=10
- ☐ \$val:10
- ☐ \$val=\$10
- ☐ val = 10

Die richtige Antwort ist:

val=10

Arduino

Montag, 7. Juni 2021

10:10

Intro Quiz

Montag, 7. Juni 2021

10:10

Frage 1

Montag, 7. Juni 2021 10:10

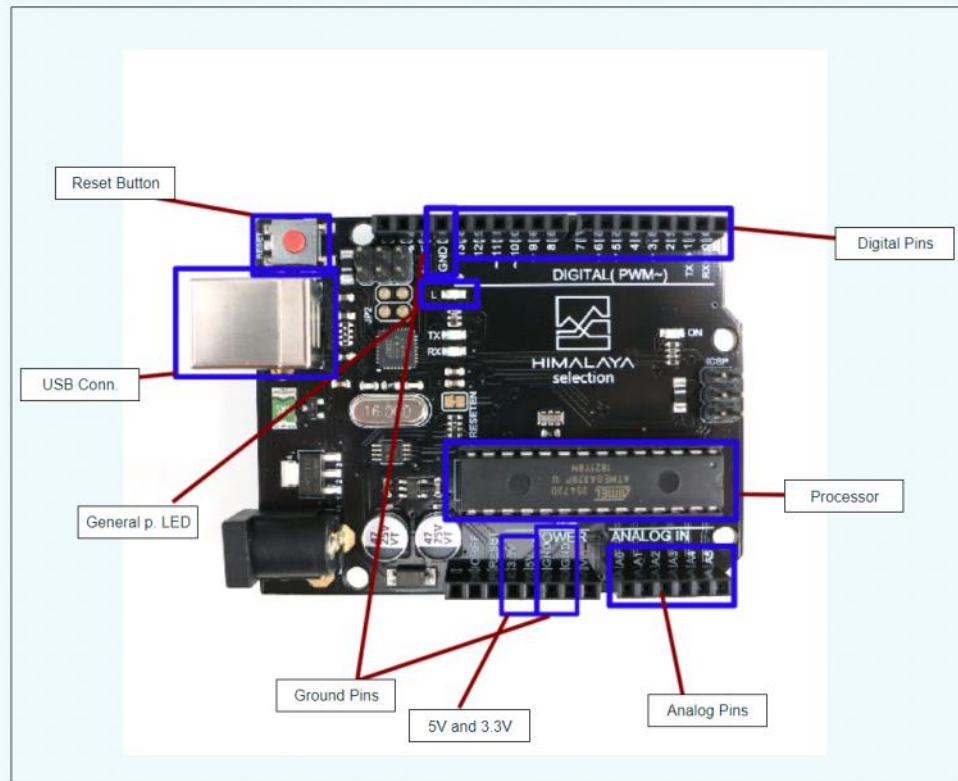
Frage 1

Richtig

Erreichte
Punkte 8,00 von
8,00

Frage
markieren

Label the parts of the Arduino UNO Himalaya (Drag and Drop the labels).



Frage 2

Montag, 7. Juni 2021 10:11

Frage 2

Richtig

Erreichte
Punkte 6,00 von
6,00

Frage
markieren

The Following code should let a LED on pin 9 blink. Blinking starts two seconds after the device has been activated. The light-on phase should be 0.1 seconds and the light-off phase 0.9 seconds. The LED for this setup is **LOW-active**, which means, it turns off, when you provide voltage on pin 9. Complete the code.

check the following documentation:

- <https://www.arduino.cc/reference/de/language/functions/digital-io/digitalwrite/>
- <https://www.arduino.cc/reference/en/language/functions/time/delay/>

```
#define OFF HIGH ✓
#define ON LOW ✓

#define LED1 9
void setup() {
  pinMode(LED1, OUTPUT);
  digitalWrite(LED1, OFF ✓ );
  delay( 2000 ✓ );
}

void loop() {
  digitalWrite(LED1, ON);
  delay( 100 ✓ );
  digitalWrite(LED1, OFF);
  delay( 900 ✓ );
}
```

Interrupt Quiz

Montag, 7. Juni 2021 10:11

Frage 1

Montag, 7. Juni 2021 10:12

Frage 1

Richtig

Erreichte
Punkte 2,00 von
2,00

🚩 Frage
markieren

Not every pin on a micro controller is equal. Some have unique capabilities, like for example to allow the attachment of an interrupt service routine. Look at the [Documentation for Arduino UNO](#) and select all pins that support interrupts.

Wählen Sie eine oder mehrere Antworten:

- ☐ 0
- ☐ 1
- ☒ 2
- ☒ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7

Your answer is correct.

Read the linked manual to find the correct solution.

Frage 2

Montag, 7. Juni 2021 10:12

Frage 2

Richtig

Erreichte
Punkte 1,00 von
1,00

Frage
markieren

You have connected your device to a button and want to count how often the button was pressed. In your code you have a global variable (amount) and a subroutine (count):

```
volatile int amount = 0;
void count(){
    amount++;
}
```

If you use an interrupt to call the subroutine, what mode can you use? (see documentation for [attachInterrupt\(\)](#))

Wählen Sie eine oder mehrere Antworten:

- ☒ a. RISING
- ☒ b. FALLING
- ☐ c. LOW
- ☐ d. HIGH

Your answer is correct.