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/*
Uge 3 opgave 4
This is short showcase of typecasting, with examples.
Gruppe "taem awesome" (ja det er stavet forkert med vilje)
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*/

#include <stdio.h>
#include <stdlib.h>

// We initialise our variables
void* typeless;
int x, y = 0;
float a, b = 0;
char ch = 'A';

int main()
{
    // we start with som simple calculations
    printf("We start our typecasting with som simple integers\n");
    printf("x = y + 6;\ny = (int)x/4;\n\n");
    x = y + 6;
    // we use float to redefine a int, this is only possible using
    //   typecasting
    y = (int)x/4;

    // it's not nessesary to typecast a simple type to a more advanced type
    //   a.i. int to float
    printf("then we show that typecasting is not nessary, when going from a
    //   simple to a advanced type\n");
    printf("a = x / 3.2;\nb = x + y;\n\n");
    a = x / 3.2;
    b = x + y;

    // we use chars and typecast it as unsinged int
    printf("\n Now we try with char and unsinged\n");
    printf("This is our char:  %c\n",ch);
    printf("now we print it as unsigned: 0x%08x\n\n",(unsigned int)ch);

    // Here we use null pointer which can be typecasted as all types
    printf("Here we use null pointers, which is an amazing type who can be
    //   typecasted to all types\n");
    typeless = &a;
    printf("Now our void pointer points to the float:  %f\n", *(float*)
    //   typeless);
    typeless = &ch;
    printf("Now our void pointer points to the char:  %c\n", *(char*)
    //   typeless);
    typeless = &x;
    printf("Now our void pointer points to the int:  %d\n", *(int*)typeless)
    //   ;

    return 0;
}
```