



RADBOUD UNIVERSITEIT NIJMEGEN  
AFDELING STERRENKUNDE  
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## Programming 1 – 2014/15 Computer Practicum 6 – 05.01.2015

**The answers should be handed in before 12.01.2015 on blackboard!**

Write as a comment on the first line your name and student number:

```
/* <name> <student number> */  
#include <stdio.h>
```

### **task 18** (3 points)

A leap day occurs every four years, with the exception of century years. These only a leap day if they are dividable by 400 (so 1900 does not have a leap day, but 2000 does). Write a program where you can enter a year, and it checks if the year is a leap year or not. The program should give the following line as output: "The year %i is a leap year" of "The year %i is not a leap year".

Test your program for the year 2014 and with the last digits of your student number (example: S1234567 → year 4567).

### **task 19** (3 points)

Write a function `char *day_of_the_week(int d)`. This function returns the name of the day of the week. The first day is Monday, the second Tuesday, ... This function is called in main function:

```
int main()  
{  
    printf("%s\n", day_of_the_week(5));  
}
```

The function `day_of_the_week` also checks if `d` has a value of 1 to 7, and if not, returns "ERROR".

### **task 20** (3 points)

Write a program for a simple calculator. It should be able to execute simple operations; +, -, \* and / on two numbers. When you enter:

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the program should return 3.

In the main program read from the standard input (stdin) until EOF. Use the function `fgets` to read the line.

```
char *fgets(char *str, int n, FILE *stream)
```

Write a function `evaluate(char *text)`. This function uses a string `<text>` as input and returns the result of the operation.

The function `evaluate` searches for the characters "+", "-", "\*" en "/" in `<text>`. The characters before the operator are then assigned to a float variable and the characters after the operator to a second float variable. Use the function `sscanf`. When this is done, the calculation is executed.

Print the result for every operation in the main program to the screen.

Class website: <http://particle.astro.ru.nl/goto.html?prog1415>.

For general questions about the organization please contact Jan van Roestel ([j.vanroestel@astro.ru.nl](mailto:j.vanroestel@astro.ru.nl)).