Technische Universiteit
Eindhoven
University of Technology

BASIC

End Presentation
Innovation Fund 2015

7 January 2016

Where innovation starts

BASIC:

Boosting Activity of Students In between Contacts

Project goals

- Guide and stimulate student learning
- Increase student and tutor productivity at tutorial time
- Design and workflow for Wrap-up, Test, and Advice

Expected Outcomes

- Strengthening of comprehension of new material
- Increase student insight in own level of understanding
- Learning from mistakes and deliberate practice
- Longer attuned, better motivated and enjoys more

Technical approach

- Low profile end-user techniques for video clips
  - HTML + JavaScript (Linux, Windows)
  - Adobe Captivate and Presenter (Windows)
  - FaceTime + QuickTime (Mac)
- Student access via OnCourse

Undergraduate Courses

- 2WF40 Set Theory and Algebra (Q1)
- 2IP90 Programming (Q1)
- 2WF20 Linear Algebra (Q1 & Q2)
- 2IT70 Automata and Process Theory (Q4 in 2016)

31 August - 6 September

Behandelde stof	Huiswerk
Hoofdstuk 1 In dit hoofdstuk maak je kennis met verzamelingen. Voor je begint met de opgaven ken je de volgende begrippen: ▪ verzameling, deelverzameling, machtsverzameling ▪ verschillende manieren om verzamelingen te beschrijven. ▪ doorsnede, vereniging en complement ▪ rekenregels voor doorsnede, vereniging en complement ▪ Cartesisch product ▪ partitie	Lees eerst de theorie door, of bekijk de videos, doe dan de digitale opgaven, en vervolgens 1.6: alle opgaven
Hoofdstuk 2 In dit hoofdstuk behandelen we enkele onderwerpen uit de logica: ▪ logische beweringen ▪ $\vee$ en $\wedge$ en $\neg$ ▪ waarheidstabel ▪ kwantoren $\forall$ en $\exists$ ▪ Regels van DeMorgan	Lees eerst de theorie door of bekijk de videos, maak dan de digitale opgaven en vervolgens 2.4: alle opgaven

Video: Sets and subsets

Video: How to describe sets?

Video: Operations on sets

Click for Clip

Verzamelingen

Beschikbaar tot en met 13 september

Video Logical Operators

Video Proposition calculus

Video Quantifiers

Logica

Beschikbaar tot en met 13 september

Set Theory and Algebra (2WF40)

Verzamelingen

Review mode

Verzamelingen

<

Stel A is de verzameling $\{0, \{0,1\}, \{0\}, 0, \{0,1,\{0\}\}, 1, \{1\}, 1, \{1\}, \{2\}, \{\{2\}\}, \{2,\{2\}\}\}$

Hoeveel elementen bevat A?

Submit


Opgaven uitwerken
3/8
• Strategie bepalen: op basis van stellingen en technieken uit de theorie
• Strategie uitvoeren: de stappen leidend tot het/een antwoord doorwerken
• Uitwerking opgave: de opgave helder onderbouwd weergeven
/ faculteit wiskunde en informatica
2014–2015

Programming (2IP90)

News forum

Contact and People

Staff Forum

Material and links

CoffeeDregs

This may be a better version for Mac users

Programming Clips

Reader complete

The reader for this course. All material is also in the slide, but order and style different. This is meant for off-line reading, more structured, and organized by concept.

Note that during the exam this website is ***not*** accessible. Download these files to your laptop if you want to consult them during the exam. Or later in your life. There is no guarantee that this information will be accessible after the resit exam.

Week 7

Slides Lecture 13

Instruction 13

Instruction 14

```
>0
The product is -30
```

3.2 Repeated temperature conversion

Write a program that repeatedly asks for and reads a
heit or vice-versa. The choice is indicated by the input
followed by a space and a `C`, like `20 C` (for Celsius
lowed by a space and an `F`, like `68 F` (for Fahrenhe
the temperature as chosen and outputs the original va

Use the formulas Fahrenheit = Celsius x 1.8 + 32 and

Store the choice in a `String` variable `choice`.

The program terminates if a word rather than a ten
good way to implement this is, to use `hasNextDoub`
repetition: `hasNextDouble()` is `true` if a double
remove it from input; if there is something else on in

Use the formulas Fahrenheit = Celsius x 1.8 + 32 and

Example output:

```
Give a temperature in Celsius or Fal
>20.0 C
20.0 degrees Celsius = 68.0 degrees

Give a temperature in Celsius or Fal
>68.0 F
68.0 degrees Fahrenheit = 20.0 degr

Give a temperature in Celsius or Fal
>Quit
program stops
```

3.3 Finding the maximum int value

The built-in numeric types of Java are limited in the
two large integer numbers, e.g., 1234567 and 234567

Clip-SolutionExercise3.2

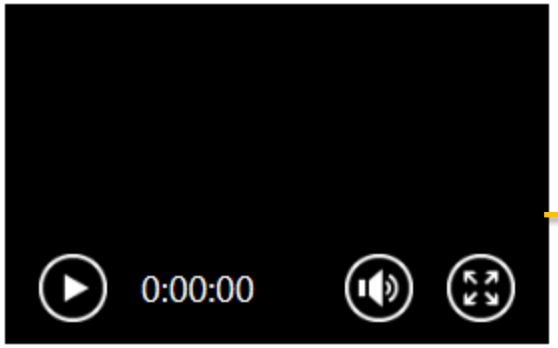
```
import java.util.*;

class RepeatedTemperatureConversion {
    Scanner sc = new Scanner( System.in );

    tempIn
    void convert() {

    }

    public static void main( String[] a ){
        ( new RepeatedTemperatureConversion() ).convert();
    }
}
```

```
import java.util.*;

class RepeatedTemperatureConversion {
    Scanner sc = new Scanner( System.in );

    double tempIn;  // temperature to be converted
    double tempOut; // converted temperature
    String choice;  // scale of tempIn "C" or "F"
    String prompt;

    void convert() {
        prompt = "Type a temperature and a scale or Quit";
        while ( sc.hasNextDouble() ) {
            System.out.println( prompt );
            tempIn = sc.nextDouble();
            choice = sc.next();
            if ( choice.equals( "F" ) ) {
                tempOut = ( tempIn - 32 ) / 1.8;
                System.out.println( tempIn+" degrees Fahrenheit = "+tempOut+" degrees Celsius");
            } else { // choice is Celsius
                tempOut = tempIn * 1.8 + 32;
                System.out.println( tempIn+" degrees Celsius = "+tempOut+" degrees Fahrenheit");
            }
        }
    }

    public static void main( String[] a ){
        ( new RepeatedTemperatureConversion() ).convert();
    }
}
```

18 April - 24 April

This week covers Sections 2.1 on deterministic finite automata (DFA) and Section 2.2 on non-deterministic finite automata (NFA).

Wrap-up of Section 2.1.



Click for Clip

Question 4

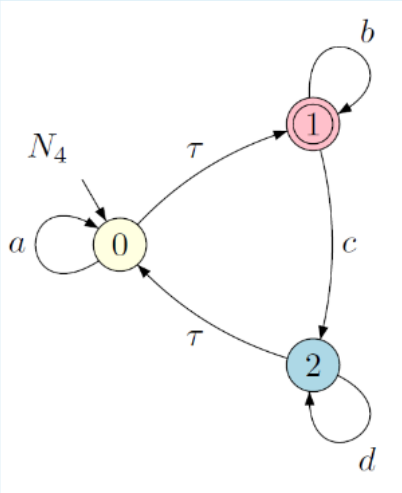
Not complete

Marked out of 1.00

Flag question

Edit question

Consider the NFA N_4 below.



What is the ε-closure $E(q_0)$ of state q_0 in N_4?

Select one:

- A. $\{q_0\}$
- B. $\{q_1\}$
- C. $\{ q_0, q_1 \}$
- D. $\{ q_0, q_1, q_2 \}$

Check

BASIC aims

- How to get students better prepared to class?
- ~~How to make clips and quizzes quickly?~~
- How to make these with little overhead?

BASIC outcomes

- Experimented with technology
- Gained experience designing clips
  1. Start from learning objectives
  2. Make slides
  3. Make script
  4. Do the recording
- Picking up practice of multiple-choice questions
- Need for clip making fluency
- Student evaluation for Q1 courses coming soon