Arduboy

Starters Guide

Stijn Caerts

Jeugd, Cultuur en Wetenschap vzw

JEUGD, CULTUUR EN WETENSCHAP VZW

STIJN.CAERTS.BE – WWW.JEUGDCULTUURENWETENSCHAP.BE

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Inhoudsopgave

Introductie tot C++

1. Inleiding

Programma's voor **Arduino** en **Arduboy** worden geschreven in C++.

2. Variabelen en types

3. Controlestructuren

4. Functies en procedures

5. Arrays en lijsten (ADVANCED)

6. Klassen en objecten (Advanced)

II Arduboy

7. Arduino

8. Arduboy

Part One

9. Text Chapter

9.1 Paragraphs of Text

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9.2 Citation

This statement requires citation [1]; this one is more specific [2, pagina 162].

9.3 Lists

Lists are useful to present information in a concise and/or ordered way[1].

9.3.1 Numbered List

1. The first item
2. The second item
3. The third item

9.3.2 Bullet Points

- The first item
- The second item
- The third item

9.3.3 Descriptions and Definitions

Name Description
Word Definition
Comment Elaboration

[1] Footnote example...

10. In-text Elements

10.1 Theorems

This is an example of theorems.

10.1.1 Several equations

This is a theorem consisting of several equations.

Theorem 10.1.1 — Name of the theorem. In $E = \mathbb{R}^n$ all norms are equivalent. It has the properties:

$$\big|||\mathbf{x}|| - ||\mathbf{y}|||\big| \leq ||\mathbf{x} - \mathbf{y}|| \tag{10.1}$$

$$||\sum_{i=1}^{n} \mathbf{x}_i|| \leq \sum_{i=1}^{n} ||\mathbf{x}_i|| \quad \text{where } n \text{ is a finite integer} \tag{10.2}$$

10.1.2 Single Line

This is a theorem consisting of just one line.

Theorem 10.1.2 A set $\mathcal{D}(G)$ in dense in $L^2(G)$, $|\cdot|_0$.

10.2 Definitions

This is an example of a definition. A definition could be mathematical or it could define a concept.

Definition 10.2.1 — Definition name. Given a vector space E, a norm on E is an application,

denoted $||\cdot||$, E in $\mathbb{R}^+ = [0, +\infty[$ such that:

$$||\mathbf{x}|| = 0 \;\Rightarrow\; \mathbf{x} = \mathbf{0} \tag{10.3}$$
$$||\lambda\mathbf{x}|| = |\lambda| \cdot ||\mathbf{x}|| \tag{10.4}$$
$$||\mathbf{x} + \mathbf{y}|| \leq ||\mathbf{x}|| + ||\mathbf{y}|| \tag{10.5}$$

10.3 Notations

Notation 10.1. *Given an open subset G of $\mathbb{R}^n$, the set of functions φ are:*

1. *Bounded support G;*
2. *Infinitely differentiable;*

a vector space is denoted by $\mathcal{D}(G)$.

10.4 Remarks

This is an example of a remark.

R The concepts presented here are now in conventional employment in mathematics. Vector spaces are taken over the field $\mathbb{K} = \mathbb{R}$, however, established properties are easily extended to $\mathbb{K} = \mathbb{C}$.

10.5 Corollaries

This is an example of a corollary.

Corollary 10.5.1 — Corollary name. The concepts presented here are now in conventional employment in mathematics. Vector spaces are taken over the field $\mathbb{K} = \mathbb{R}$, however, established properties are easily extended to $\mathbb{K} = \mathbb{C}$.

10.6 Propositions

This is an example of propositions.

10.6.1 Several equations

Proposition 10.6.1 — Proposition name. It has the properties:

$$\big|||\mathbf{x}|| - ||\mathbf{y}|||\big| \leq ||\mathbf{x} - \mathbf{y}|| \tag{10.6}$$
$$||\sum_{i=1}^{n} \mathbf{x}_i|| \leq \sum_{i=1}^{n} ||\mathbf{x}_i|| \quad \text{where } n \text{ is a finite integer} \tag{10.7}$$

10.6.2 Single Line

Proposition 10.6.2 Let $f, g \in L^2(G)$; if $\forall\varphi \in \mathcal{D}(G)$, $(f, \varphi)_0 = (g, \varphi)_0$ then $f = g$.

10.7 Examples

This is an example of examples.

10.7.1 Equation and Text

■ **Example 10.1** Let $G = \{x \in \mathbb{R}^2 : |x| < 3\}$ and denoted by: $x^0 = (1,1)$; consider the function:

$$f(x) = \begin{cases} \mathrm{e}^{|x|} & \text{si } |x - x^0| \leq 1/2 \\ 0 & \text{si } |x - x^0| > 1/2 \end{cases} \tag{10.8}$$

The function f has bounded support, we can take $A = \{x \in \mathbb{R}^2 : |x - x^0| \leq 1/2 + \epsilon\}$ for all $\epsilon \in]0\,;5/2 - \sqrt{2}[$. ■

10.7.2 Paragraph of Text

■ **Example 10.2 — Example name.** Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris. ■

10.8 Exercises

This is an example of an exercise.

Exercise 10.1 This is a good place to ask a question to test learning progress or further cement ideas into students' minds. ■

10.9 Problems

Problem 10.1 What is the average airspeed velocity of an unladen swallow?

10.10 Vocabulary

Define a word to improve a students' vocabulary.

Vocabulary 10.1 — Word. Definition of word.

IV

Part Two

11. Presenting Information

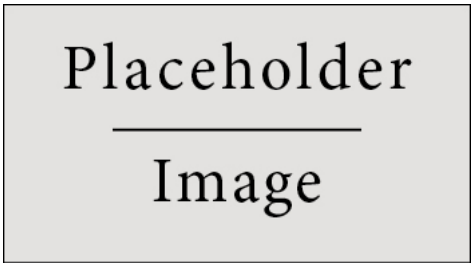
11.1 Table

Treatments	Response 1	Response 2
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

Tabel 11.1: Table caption

Referencing Table 11.1 in-text automatically.

11.2 Figure



Figuur 11.1: Figure caption

Referencing Figure 11.1 in-text automatically.

Bibliografie

Artikels

[1] James Smith. “Article title”. In: 14.6 (mrt 2013), pagina’s 1–8 (zie pagina 30).

Boeken

[2] John Smith. *Book title*. 1ste editie. Deel 3. 2. City: Publisher, jan 2012, pagina’s 123–200 (zie pagina 30).

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