ECE 445

SENIOR DESIGN LABORATORY

INDIVIDUAL PROGRESS REPORT

Project #114

AN AWESOME PROJECT MADE BY AN AMAZING TEAM

Team #514

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TA: Hello WORLD
Sponsor: Your PROFESSOR

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Abstract

Put your abstract here

Keywords Keyword 1, keyword 2, keyword 3

Contents

1 Introduction

1.1 Problem statement

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.[1], [2].

1.2 Importance

$$f(x) = \sum_{n=0}^{\infty} \frac{1}{n!} f^{(n)}(x_0)(x - x_0)^n, x \in U(x_0) \tag{1.1}$$

$$\begin{aligned} e^{ix} &= 1 + ix + \frac{1}{2!}(ix)^2 + \frac{1}{3!}(ix)^3 + \cdots \frac{1}{n!}(ix)^n + \cdots \\ &= 1 + ix - \frac{1}{2!}x^2 - i\frac{1}{3!}x^3 + \frac{1}{4!}x^4 + i\frac{1}{5!}x^5 - \cdots \\ &= \left(1 - \frac{1}{2!}x^2 + \frac{1}{4!}x^4 - \cdots\right) + i\left(x - \frac{1}{3!}x^3 + \frac{1}{5!}x^5 - \cdots\right) \\ &= \cos x + i \sin x \end{aligned} \tag{1.2}$$

1.3 Literature Review

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.[1], [3], [4].

```
1 #include<stdio.h>
2 void fuzzy(int x){
3     return x;
4 }
5 int main(){
6     int a = 0, b, c;
7     scanf("%d", &b);
8     c = b;
```

```
9       if (a == b)
10          a = fuzzy(c);
11      else
12          b = fuzzy(a);
13      printf("%d␣%d\n", a, fuzzy(c));
14      return 0;
15  }
```

2 Methodology

Test the ability to print some units, say (in texts), $10 \times 10^5\,\mu\text{m} \cdot \Omega \cdot {}^\circ$.
It also applies to equations,

$$R_t = 10 \times 10^5\,\mu\text{m} \cdot \Omega \cdot {}^\circ \tag{2.1}$$

3 Results

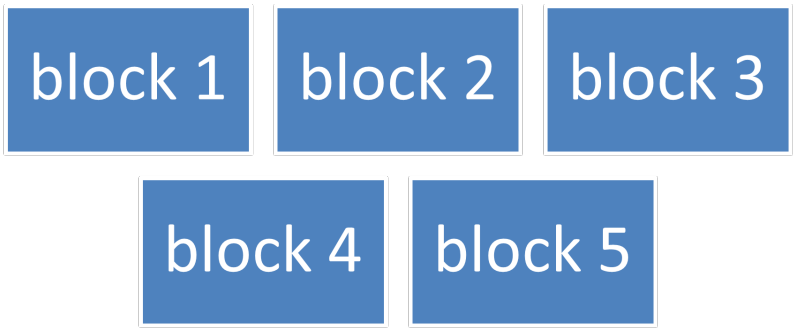

Figure 3.1 An example figure.

4 Discussion

5 Conclusion

References

[1] Y. Li and J. Fang, "测量半导体中少子漂移迁移率和扩散长度的新方法 [New Method of Determining Excess Carrier Bipolar Mobility]," 半导体学报 *[Chinese Journals of Semiconductors]*, vol. 20, no. 12, pp. 1129–1131, Dec. 1999. [Online]. Available: http://www.jos.ac.cn/fileBDTXB/oldPDF/2005092734449173.pdf.

[2] J. R. Haynes and W. Shockley, "The Mobility and Life of Injected Holes and Electrons in Germanium," *Physical Review*, vol. 81, no. 5, pp. 835–843, Mar. 1, 1951. DOI: 10.1103/PhysRev.81.835.

[3] J. A. Prufrock, *Lasers and Their Applications in Surface Science and Technology*, 2nd ed. New York, NY: McGraw-Hill, 2009.

[4] J. R. Haynes and W. Shockley, "Investigation of Hole Injection in Transistor Action," *Physical Review*, vol. 75, no. 4, pp. 691–691, Feb. 15, 1949. DOI: 10.1103/PhysRev.75.691.

A Example

An example piece of code:

```
# mp4.py
# ---------------
# Licensing Information:  You are free to use or extend this projects for
# educational purposes provided that (1) you do not distribute or publish
# solutions, (2) you retain this notice, and (3) you provide clear
# attribution to the University of Illinois at Urbana-Champaign
#
# Created Fall 2018: Margaret Fleck, Renxuan Wang, Tiantian Fang, Edward
    Huang (adapted from a U. Penn assignment)
# Modified Spring 2020: Jialu Li, Guannan Guo, and Kiran Ramnath
# Modified Fall 2020: Amnon Attali, Jatin Arora
# Modified Spring 2021 by Kiran Ramnath
"""
Part 1: Simple baseline that only uses word statistics to predict tags
"""


def baseline(train, test):
    '''
    input:  training data (list of sentences, with tags on the words)
            test data (list of sentences, no tags on the words)
    output: list of sentences, each sentence is a list of (word,tag) pairs.
            E.g., [[(word1, tag1), (word2, tag2)], [(word3, tag3), (word4,
    tag4)]]
    '''
    tags_dict = {}
    words_dict = {}
    for sentence in train:
        for words in sentence:
            word = words[0]
            tag = words[1]
            if word in words_dict:
                if tag in words_dict[word]:
                    words_dict[word][tag] += 1
                else:
                    words_dict[word][tag] = 1
            else:
                words_dict[word] = {tag: 1}
            if tag in tags_dict:
                tags_dict[tag] += 1
            else:
                tags_dict[tag] = 1

```

```
42      return_list = []
43      for sentence in test:
44          temp = []
45          for word in sentence:
46              if word in words_dict:
47                  temp.append((word, max(words_dict[word], key=words_dict[
    word].get)))
48              else:
49                  temp.append((word, max(tags_dict, key=tags_dict.get)))
50          return_list.append(temp)
51
52      return return_list
```

A.1 Some Test Data

A.2 Derivation of Square Law

Acknowledgement

Thank you thank you!