Exploration and Presentation - Assignment 2

Task 1 Find requirements of bachelor thesis. Write a LaTeXdocument explaining your findings. Document your sources.

Task 2 Produce a template (in LaTeX, of course) that you can use in your bachelor thesis. It should be rich with examples of the following (ie. one of each):

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Due to: 12-03-2021

Contents

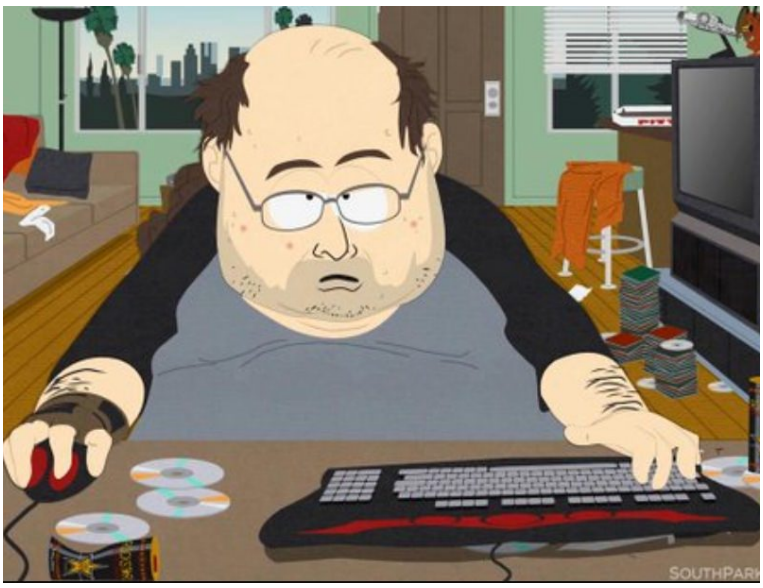
1 Graphics

Page of graphics assigments

1.1 Caption over image

Label: southpark1

Figure 1: Caption over image



1.2 Caption under image

Label: southpark2

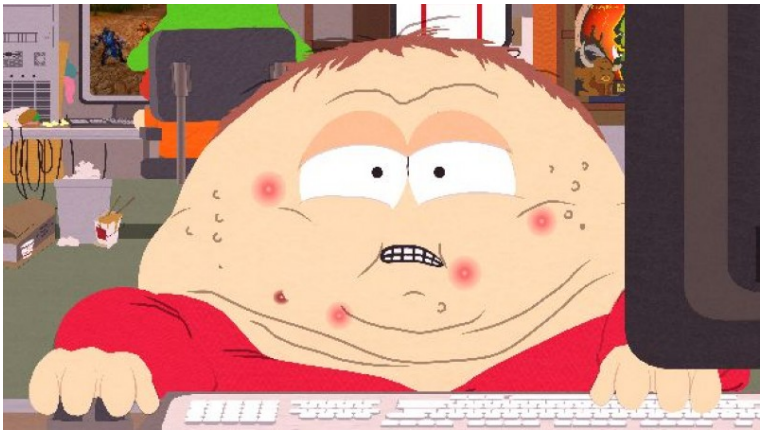
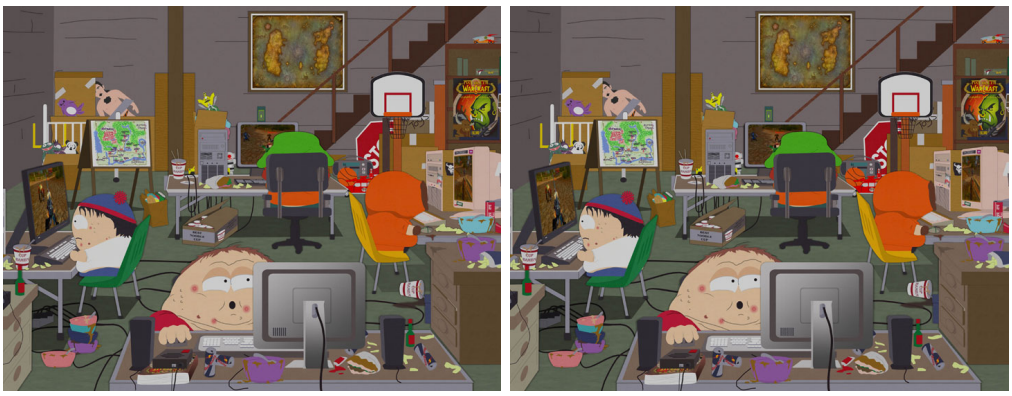


Figure 2: Caption under image

1.3 Two images next to each other

Label: doublepicture



(a) Picture 2 (b) Picture 2

Figure 3: Two images next to each other

2 Reference

2.1 Reference to image

In figure 1, you see the might gamer, and his foe 2. The battle starts when all the fighters 3a is ready for battle.

2.2 Reference to page containing the image

Picture of cartman can be seen on page 4

3 Numbered section

This

3.1 Subsection

is

3.1.1 Subsubsection

sections

Paragraph in

Subparagraph latex

Another section

4 Lists

Different kind of lists

4.1 Bullet points

- First item
- Second item
- Third item
- Fourth item

4.2 Alternative bullet symbols

- ∗ Asterisk
- ◇ Diamond
- ◦ Circle
- · Period
- • Bullet (default)
- – Dash
- – Another dash

4.3 Enumerated lists

1. First item
2. Second item
3. Third item
4. Fourth item

4.4 Nested

1. First item
    (a) Second item
    (b) Third item
        i. Fourth item
        ii. Fifth item
            A. Sixth item
            B. Seventh item
2. Eighth item
3. Ninth item

4.5 Alphabetical order

A. First item
B. Second item
C. Third item
D. Fourth item

5 Table with multiple columns

5.1 Various horizontal alignments in columns (left, right, centered)

1	2	3
4	5	6

5.2 Cell spanning multiple columns

Col1	Col2	Col2	Col3
1	2	3	4
5	6	7	8
9		11	12
13	14	15	16
17	18	19	20

5.3 Vertical alignment in multi-line cells

cell1 dummy text dummy text dummy text	cell2	cell3
cell1 dummy text dummy text dummy text	cell5	cell6
cell7	cell8	cell9

5.4 Table description and label

Col1	Col2	Col2	Col3
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20

Table 1: Caption for table

5.5 Reference to table

This is a ref to table 1

6 Code listing

6.1 With emphasized key words in your favorite programming language

Merge sort writtin in java

```
public void merge(int arr[], int l, int m, int r) {
    int n1 = m-l+1;
    int n2 = r-m;
    int[] L = new int[n1];
    int[] R = new int[n2];
    for(int i = 0;i < n1; i++) {
        L[i] = arr[l+i];
    }
    for(int i = 0;i < n2; i++) {
        R[i] = arr[m+1+i];
    }
    int i = 0, j = 0, k =l;
    while(i < n1 && j < n2) {
        if(L[i] <= R[j]) {
            arr[k++] = L[i++];
        }
        else {
            arr[k++] = R[j++];
        }
    }
    while(i < n1) {
        arr[k++] = L[i++];
    }
    while(j < n2) {
        arr[k++] = R[j++];
    }
}
```

7 Math equations

7.1 Inline equations (in text)

Some equation $\prod_{k=0}^{n} 2^k * 2^{n+1} = \prod_{k=0}^{n+1} 2^k$ in text

7.2 Display equations (on separate line)

Some equation on separate line:

$$x^n + y^n = z^n$$

7.3 Fractions, summations, products, roots, powers

7.3.1 Fractions

$$\frac{1}{k(k+1)} \tag{1}$$

7.3.2 Summations

$$\sum_{k=1}^{n} \frac{1}{k(k+1)} \tag{2}$$

7.3.3 Products

$$\prod_{k=0}^{n} 2^k * 2^{n+1} = \prod_{k=0}^{n+1} 2^k \tag{3}$$

7.3.4 Roots

$$\sqrt[1]{9} \tag{4}$$

7.3.5 Powers

$$2^k \tag{5}$$

8 Bibliography with book, article and internet link

This is a cite [Row05] Avada Kedavra

References

[Row05] J. K. Rowling. *Harry Potter and the Half-Blood Prince*. Harry Potter. Raincoast Books, 2005. ISBN: 0747581088.

9 Todo notes of own choice

Here's an inline comment

This is not done.

You can use *italic in a comment*, like this.