

## BODY MASS INDEX APPLICATION

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### Abstract

Body Mass Index (BMI) is a measure of body fat based on height. BMI is a measurement of body weight based on height and weight. Although BMI does not actually "measure" the percentage of body fat, it is a useful tool to estimate a healthy body weight based on height. Due to its ease of measurement and calculation, it is the most widely used diagnostic indicator to identify a person's optimal weight depending on his height. BMI "number" will inform someone if they were underweight, normal weight, overweight, or obese. However, due to the wide variety of body types, the distribution of muscle and bone mass, etc., it is not appropriate to use this as the only or final indication for diagnosis. Ideal Weight Application (IWa) is a BMI Application which can make someone to know their body fat easier. IW Apps is application based on Adobe Flash which can run in Personal Computer. The purpose of this application is to help someone being success in their diet program.

**Keywords** : Body Mass Index (BMI), Height, Weight, Body fat

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### INTRODUCTION

Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters. A high BMI can be an indicator of high body fatness. BMI can be used to screen for weight categories that may lead to health problems but it is not diagnostic of the body fatness or health of an individual. BMI is used as a screening tool to indicate whether a person is underweight, overweight, obese or a healthy weight for their height. If a person's BMI is out of the healthy BMI range, their health risks may increase significantly. BMI values are age-independent and the same for both sexes. However, BMI may not correspond to the same degree of fatness in different populations due to different body proportions. BMI is one type of tool to help

health professionals assess the risk for chronic disease. It is also important to understand other risk factors.

BMI calculation has been done online and also manually. Creation of BMI applications that can not be run online can also be created using various existing applications. In this research, BMI calculations were based on adobe Flash. Ideal Weight Apps (IWa) is a BMI calculation application that enables users to know their weight category according to the WHO criteria. This application is easy to use because it does not require internet connection and installation to Personal Computer (PC). It's just by copying the file and run it on the PC.

## METHODS

BMI is not accurate enough to be used as a diagnostic tool. However, it is used as a screening tool to identify potential weight problems in adults.

A person may have a high BMI, yet to determine if this excess weight is a health risk, a health care provider would need to complete further assessments such as:

- Skinfold thickness measurements
- Evaluations of diet
- Physical activity
- Family history
- Other appropriate health screenings.

The calculation of BMI is based on the following formulas:

## DISCUSSION

This application is named Ideal Weight application (IWA). Here's the interface on this application. The interface consists of 3 views. Namely the initial menu, the main menu and close menu. Here is the screenshot of the display of the application.



Figure 1. Initial Menu

The action script used in the GO button is as follows:

```
on(release){
    nextFrame();
}
```

## Weight (kg) / Height (m)<sup>2</sup>

With the metric system, the formula for BMI is weight in kilograms divided by height in meters squared (kg/m<sup>2</sup>). Since height is commonly measured in centimeters, divide height in centimeters by 100 to obtain height in meters. This application is based on Adobe Flash.

Table 1 : Classification BMI

Classification	BMI (Kg/m <sup>2</sup> )
<i>Underweight</i>	<18.5
<b>Normal</b>	18.5 – 24.99
<b>Overweight</b>	≥25
<b>Obese</b>	≥30

Source: WHO 2004

}

For full display, the following action script is given

```
fscommand("fullscreen",true);
mySound =new Sound();
stop();
```

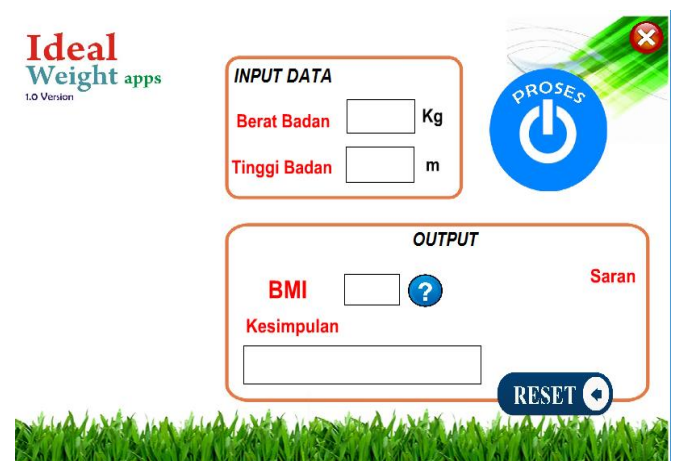


Figure 2. Main Menu

In the process button, the action script given are:

```
on(release){
    bmi = number(bb)/number ((tb*tb));
    if (bmi<18.5){
```

```

hasil = "Underweigt/Kurus"
saran = "Sebaiknya mulai
menambah berat badan dan mengkonsumsi
makanan berkarbohidrat di imbangi dengan olah
raga"

```

```

_root.mySound.attachSound("kurus.mp3
");

```

```

_root.mySound.start(0,1);
    arek._visible = true;
    }
    else
    if((bmi>18.5) and (bmi<24.99)){
    hasil = "Normal"
    saran = "SELAMAT, berat badan
anda termasuk kategori ideal. Pertahankan untuk
terus hidup sehat dan pola makan yang
seimbang"

```

```

_root.mySound.attachSound("normal.mp
3");

```

```

_root.mySound.start(0,1);
    arek._visible = true;
    }
    else
    if((bmi>25) and (bmi<29.99)){
    hasil = "Overweight/Kegemukan"
    saran = "Sebaiknya hindari
makanan berlemak dan mulailah meningkatkan
olahraga seminggu minimal 2 kali"

```

```

_root.mySound.attachSound("gemuk.mp
3");

```

```

_root.mySound.start(0,1);
    arek._visible = true;
    }
    else {
    hasil = "Obesitas"
    saran = "Sebaiknya segera
membuat program menurunkan berat badan
karena obesitas tidak baik bagi kesehatan"

```

```

_root.mySound.attachSound("obesitas.mp3");
    _root.mySound.start(0,1);
    arek._visible = true;
}
}

```

In the Reset button, the action script given are:

```

on (release) {

```

```

    arek._visible = false;
    tb = ""
    bb = ""
    hasil = ""
    saran = ""
    bmi = ""
}

```



Figure 3. Close Menu

In the Close button, the action script given are:

```

on (press, keyPress "<PageDown>") {
    fscommand("quit","true");
}

```

This application has been tested on social events organized by Nahdlatul Ulama University Surabaya in Wonokromo Surabaya community. The use of IWA feels very beneficial because the community finally find out whether they are categorized as having normal, underweight, overweight or obesity.



Figure 4. Tested Application in Wonokromo Surabaya



Figure 5. Social Event organized by Universitas Nahdlatul Ulama Surabaya using IWA

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### CONCLUSION

1. IWA is easy to use because it does not require internet connection and installation to Personal Computer (PC).
2. IWA is a screening tool to identify potential weight problems in adults.

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