

# Documentation

## API Documentation

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# 1 Module boy\_geek

## 1.1 Variables

Name	Description
<code>__package__</code>	<b>Value:</b> None

## 1.2 Class GeekBoy

```

boys.Boy └─
           boy_geek.GeekBoy

```

boy class for geek boys

### 1.2.1 Methods

<code>__init__(self, name, atr, gfbudget, intelli, min_atr_req, type)</code>
constructor
Overrides: boys.Boy.__init__

*Inherited from boys.Boy(Section 4.2)*

`is_elligible()`

## 2 Module *boy\_generous*

### 2.1 Variables

Name	Description
<code>__package__</code>	<b>Value:</b> None

### 2.2 Class *GenerousBoy*

```

boys.Boy └─
           boy_generous.GenerousBoy

```

boy class for generous boys

#### 2.2.1 Methods

<code>__init__(self, name, atr, gfbudget, intelli, min_atr_req, type)</code>
constructor
Overrides: <code>boys.Boy.__init__</code>

*Inherited from `boys.Boy`(Section 4.2)*

`is_elligible()`

### 3 Module boy\_miser

#### 3.1 Variables

Name	Description
<code>__package__</code>	Value: None

#### 3.2 Class MiserBoy

```

boys.Boy └─
           boy_miser.MiserBoy

```

boy class for miser boys

##### 3.2.1 Methods

<code>__init__(self, name, atr, gfbudget, intelli, min_atr_req, type)</code>
constructor
Overrides: boys.Boy.__init__

*Inherited from boys.Boy(Section 4.2)*

`is_elligible()`

## 4 Module boys

### 4.1 Variables

Name	Description
<code>__package__</code>	<b>Value:</b> None

### 4.2 Class Boy

**Known Subclasses:** `boy_geek.GeekBoy`, `boy_generous.GenerousBoy`, `boy_miser.MiserBoy`  
 boy class for all boys

#### 4.2.1 Methods

<code>__init__(self, name, atr, gfbudget, intelli, min_atr_req, type)</code>
constructor

<code>is_elligible(self, mbudget)</code>
checks the elligibility of a given Girl, for the current instance of Boy class

## 5 Module couple

### 5.1 Variables

Name	Description
<code>__package__</code>	<b>Value:</b> None

### 5.2 Class Couple

couple class for all couples

#### 5.2.1 Methods

<code>__init__(self, boy, girl)</code>
constructor

<code>set_happiness(self)</code>
set the happiness of a couple

<code>set_compatibility(self)</code>
set the compatibility of a couple

## 6 Module `gift_essential`

### 6.1 Variables

Name	Description
<code>__package__</code>	<b>Value:</b> None

### 6.2 Class `EssentialGift`

`gifts.Gift` └─  
           **`gift_essential.EssentialGift`**

gift class for essential gifts

#### 6.2.1 Methods

<b><code>__init__</code></b> ( <i>self, name, price, value, type</i> )
constructor
Overrides: <code>gifts.Gift.__init__</code>



## 7 Module `gift_luxury`

### 7.1 Variables

Name	Description
<code>__package__</code>	<b>Value:</b> <code>None</code>

### 7.2 Class `LuxuryGift`

`gifts.Gift` —  
`gift_luxury.LuxuryGift`

gift class for luxury gifts

#### 7.2.1 Methods

<code>__init__</code> ( <i>self</i> , <i>name</i> , <i>price</i> , <i>value</i> , <i>type</i> , <i>lxry_rtnng</i> , <i>difficulty</i> )
constructor
Overrides: <code>gifts.Gift.__init__</code>

## 8 Module `gift_utility`

### 8.1 Variables

Name	Description
<code>__package__</code>	<b>Value:</b> None

### 8.2 Class `UtilityGift`

`gifts.Gift` —  
`gift_utility.UtilityGift`

gift class for utility gifts

#### 8.2.1 Methods

<code>__init__(self, name, price, value, type, utlty_value, utlty_class)</code>
constructor
Overrides: <code>gifts.Gift.__init__</code>

## 9 Module gifts

### 9.1 Variables

Name	Description
<code>__package__</code>	<b>Value:</b> None

### 9.2 Class Gift

**Known Subclasses:** `gift_essential.EssentialGift`, `gift_luxury.LuxuryGift`, `gift_utility.UtilityGift`  
 gift class for all gifts

#### 9.2.1 Methods

<code>__init__</code> ( <i>self</i> , <i>name</i> , <i>price</i> , <i>value</i> , <i>type</i> )
constructor

## 10 Module girl\_choosy

### 10.1 Variables

Name	Description
<code>__package__</code>	Value: None

### 10.2 Class ChoosyGirl

girls.Girl —  
                     girl\_choosy.ChoosyGirl

girl class for choosy girls

#### 10.2.1 Methods

<code>__init__(self, name, atr, mbudget, intelli, type)</code>
constructor
Overrides: girls.Girl.__init__

*Inherited from girls.Girl(Section 13.2)*

`is_elligible()`

## 11 Module `girl_desperate`

### 11.1 Variables

Name	Description
<code>__package__</code>	Value: None

### 11.2 Class `DesperateGirl`

girls.Girl —  
                     girl\_desperate.DesperateGirl

girl class for desperate girls

#### 11.2.1 Methods

<code>__init__(self, name, atr, mbudget, intelli, type)</code>
constructor
Overrides: girls.Girl.__init__

*Inherited from girls.Girl(Section 13.2)*

`is_elligible()`

## 12 Module girl\_normal

### 12.1 Variables

Name	Description
<code>__package__</code>	Value: None

### 12.2 Class NormalGirl

girls.Girl —  
                     girl\_normal.NormalGirl

girl class for normal girls

#### 12.2.1 Methods

<code>__init__(self, name, atr, mbudget, intelli, type)</code>
constructor
Overrides: girls.Girl. <code>__init__</code>

*Inherited from girls.Girl(Section 13.2)*

`is_elligible()`

## 13 Module girls

### 13.1 Variables

Name	Description
<code>__package__</code>	<b>Value:</b> None

### 13.2 Class Girl

**Known Subclasses:** `girl_choosy.ChoosyGirl`, `girl_desperate.DesperateGirl`, `girl_normal.NormalGirl`  
 girl class for all girls

#### 13.2.1 Methods

<code>__init__(self, name, atr, mbudget, intelli, type)</code>
constructor

<code>is_elligible(self, gfbudget)</code>
checks the elligibility of a given Boy, for the current instance of Girl class

## 14 Module q10\_driver

### 14.1 Functions

**random\_k**(*alist*, *k*, *criterion*)

returns the random k items from a given list of n best items according to given criterion

**allocate**()

reads and stores the input from the boys.csv and girls.csv files and then makes the valid couples

**calculate\_happiness**(*C*, *k*)

reads and stores the inputs from the gifts.csv file and provide gift exchanges between the couples

**set\_girl\_happiness**(*c*, *v1*, *v2*)

sets the happiness of a girl according to her type

**hp\_miser**(*GFT*, *c*)

provides gifting logic for Miser type Boys and sets the Happiness of the committed Boy and the whole couple, also sets the Compatibility of the couple

**hp\_generous**(*GFT*, *c*)

provides gifting logic for Generous type Boys and sets the Happiness of the committed Boy and the whole couple, also sets the Compatibility of the couple

**hp\_geek**(*GFT*, *c*)

provides gifting logic for Geek type Boys and sets the Happiness of the committed Boy and the whole couple, also sets the Compatibility of the couple

**print\_gifts**(*C*)

prints all the Gifts gifted by Boyfriend to his Girlfriend for all the Couples

**print\_hc**(*C*, *k*)

prints the k most Happy Couples and k most Compatible Couples



## 14.2 Variables

Name	Description
__package__	<b>Value:</b> None

## 15 Module utility

### 15.1 Functions

<b>utility()</b>
creates the input csv files

<b>create</b> ( <i>file</i> , <i>list</i> )
writes to csv files

### 15.2 Variables

Name	Description
__package__	Value: None

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