Pyum

Pyum ProjectAdvanced Python

Dr. Tindell

Spring 2014

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Mark Brophy
James Robe
Jason Maynard
Greg Alway

Yummly™

Overview

- Vision and scope – Robe
- Diet and Health Research – Maynard
- User interface – Tran
- Driver - Brophy
- Algorithms – Alway
- Django / Webserver – Hendrickson
- Demo - All

What is Pyum?

- Pyum is a health focused meal planner.
  - Access to a virtually limitless library of recipes as supplied by the Yummly API.
  - Provides dietary control for users with allergies, weight concerns, and even type II diabetes.
  - Scalable to other health concerns such as heart disease.

Our Team

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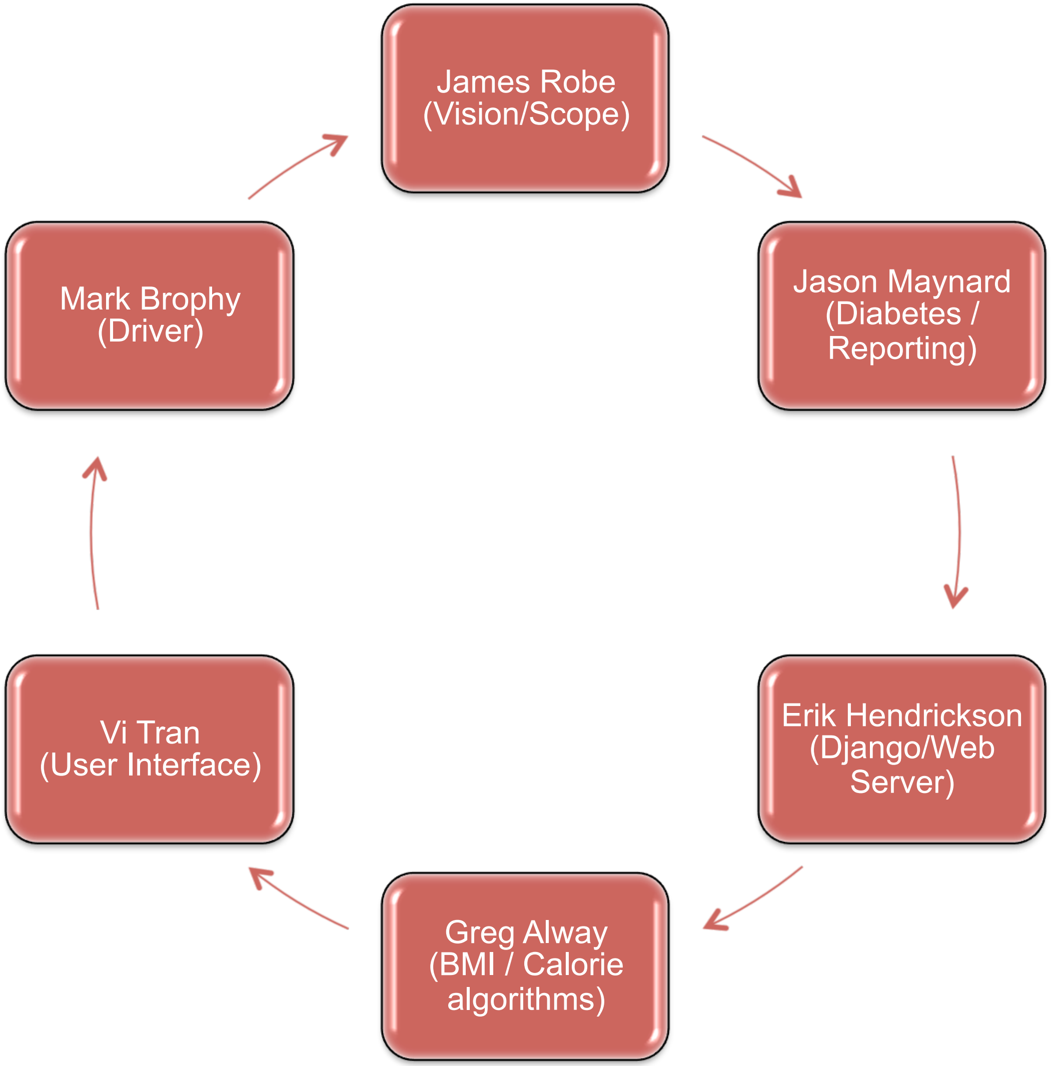

James Robe (Vision/Scope)

Jason Maynard (Diabetes / Reporting)

Erik Hendrickson (Django/Web Server)

Greg Alway (BMI / Calorie algorithms)

Vi Tran (User Interface)

Mark Brophy (Driver)

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Health Focused

- Target weight
- Basal Metabolic Rate (BMR)
- Total Daily Energy Expenditure (TDEE)
- Diabetes (Type II)
- More to come!

What is diabetes?

- Type I
  - – Total lack of insulin
  - – Only 5% of people have this
  - – “juvenile” diabetes
- Type II – Insulin imbalance
  - – Adult onset
  - – Body doesn’t use insulin properly
    - Does not produce enough insulin
    - Does not use it properly
  - – Blood glucose levels too high “hyperglycemia”
  - – Insulin helps move glucose from blood to cells

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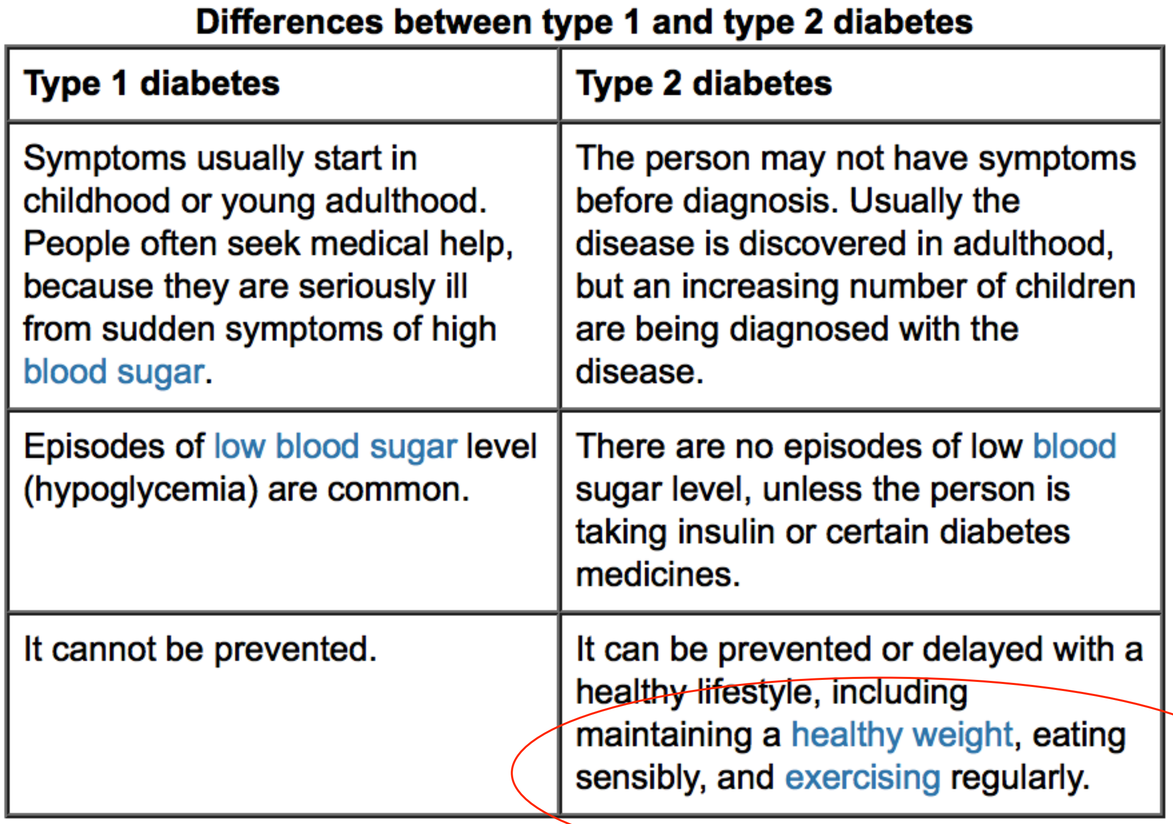
Managing Type II



Differences between type 1 and type 2 diabetes

Type 1 diabetes	Type 2 diabetes
Symptoms usually start in childhood or young adulthood. People often seek medical help, because they are seriously ill from sudden symptoms of high blood sugar.	The person may not have symptoms before diagnosis. Usually the disease is discovered in adulthood, but an increasing number of children are being diagnosed with the disease.
Episodes of low blood sugar level (hypoglycemia) are common.	There are no episodes of low blood sugar level, unless the person is taking insulin or certain diabetes medicines.
It cannot be prevented.	It can be prevented or delayed with a healthy lifestyle, including maintaining a healthy weight, eating sensibly, and exercising regularly.

"Eating sensibly"

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Type II "Friendly" diet

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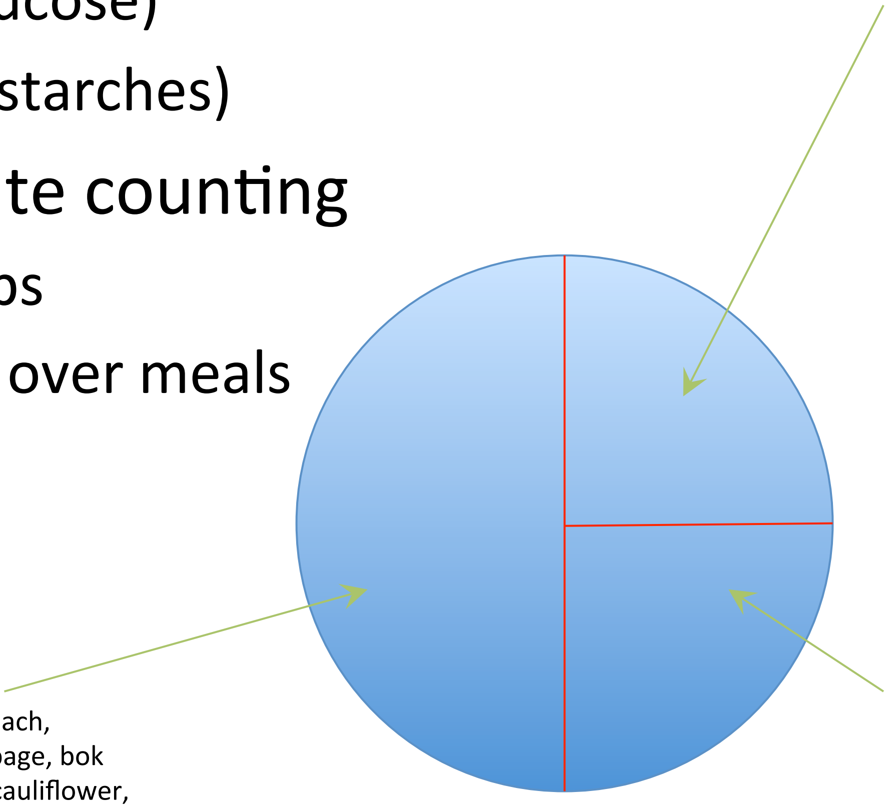
- The idea is to manage blood glucose
- Carbohydrates
  - Simple (glucose)
  - Complex (starches)
- Carbohydrate counting
  - Count carbs
  - Distribute over meals



Grains and starchy foods:
whole grain breads, such as whole wheat or rye
whole grain, high-fiber cereal
cooked cereal such as oatmeal, grits, hominy or cream of wheat
rice, pasta, dal, tortillas
cooked beans and peas, such as pinto beans or black-eyed peas
potatoes, green peas, corn, lima beans, sweet potatoes, winter squash
low-fat crackers, snack chips, pretzels and light popcorn

Non-starchy vegetables:spinach, carrots, lettuce, greens, cabbage, bok choy green beans, broccoli, cauliflower, tomatoes, vegetable juice, salsa, onion, cucumber, beets, okra, mushrooms, peppers,

Protein:
chicken or turkey without the skin fish such as tuna, salmon, cod or catfish other seafood such as shrimp, clams, oysters, crab or mussels lean cuts of beef and pork such as sirloin or pork loin tofu, eggs, low-fat cheese

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Type II “Friendly” criteria

- Carbohydrate counting
  - One carb = 15g per serving
  - Target 3 – 4 carbs per each meal (45 – 65 g per meal)*
  - 1 – 2 carbs for snacks
- No more than 400mg of sodium per serving

Healthy diabetic eating includes

- Limiting foods that are high in sugar
- Eating smaller portions, spread out over the day
- Being careful about when and how many carbohydrates you eat
- Eating a variety of whole-grain foods, fruits and vegetables every day
- Eating less fat
- Limiting your use of alcohol
- Using less salt

** Check with health care provider for individual goals*

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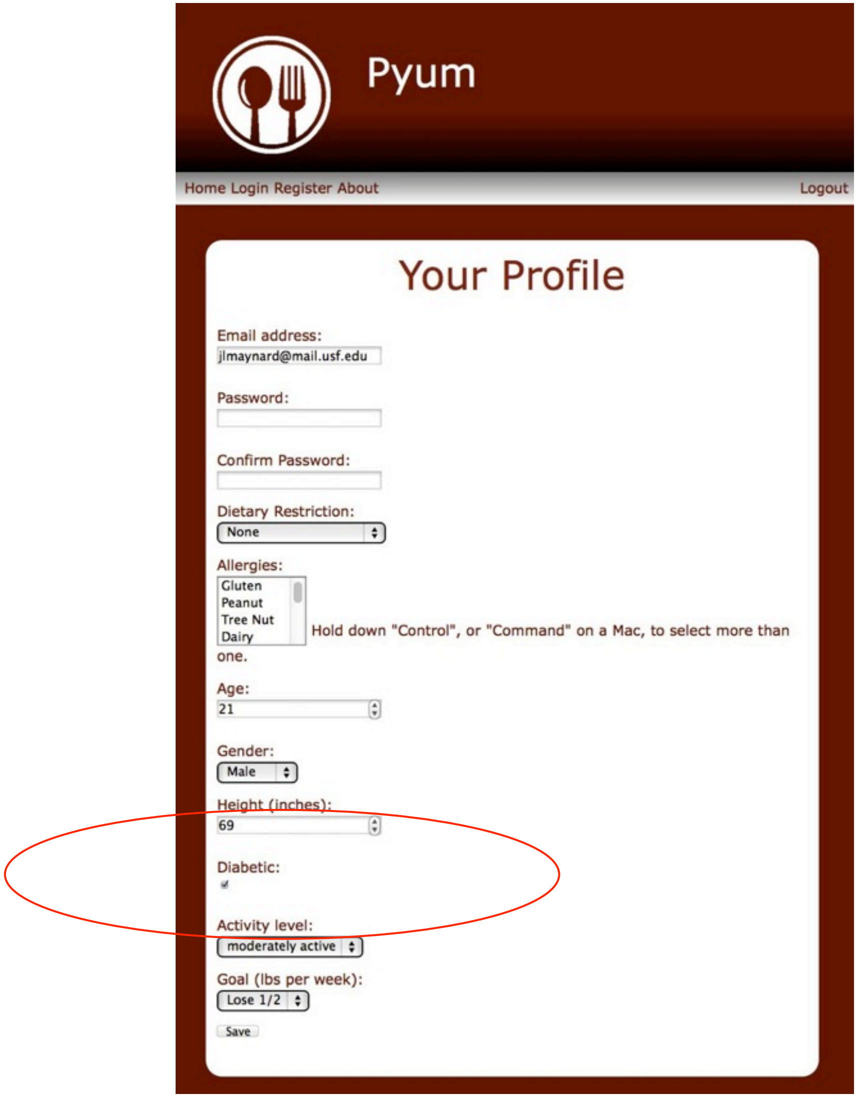
Diabetes Implementation



Your Profile

Email address:
jlmaynard@mail.usf.edu

Password:

Confirm Password:

Dietary Restriction:
None

Allergies:
Gluten
Peanut
Tree Nut
Dairy

Hold down "Control", or "Command" on a Mac, to select more than one.

Age:
21

Gender:
Male

Height (inches):
69

Diabetic:
☑

Activity level:
moderately active

Goal (lbs per week):
Lose 1/2

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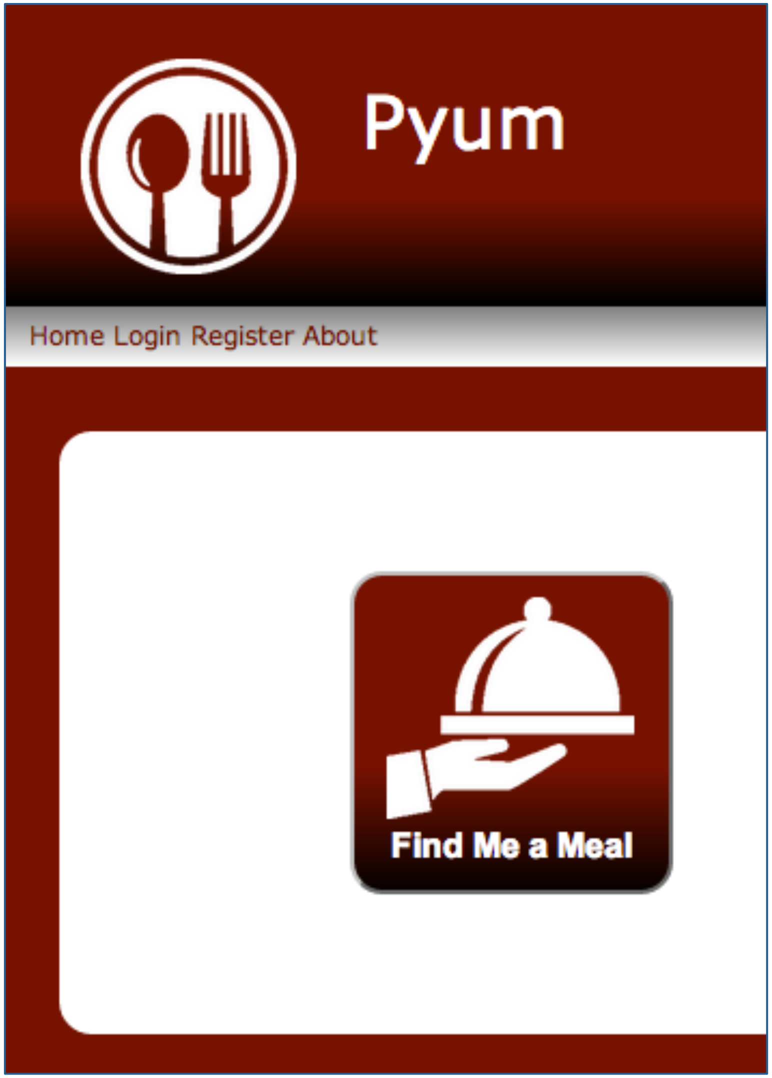
User Interface

Pages:

- Home, login
- registration
- profile, search

Resources:

- HTML
- CSS
- JQuery
- Django.Forms



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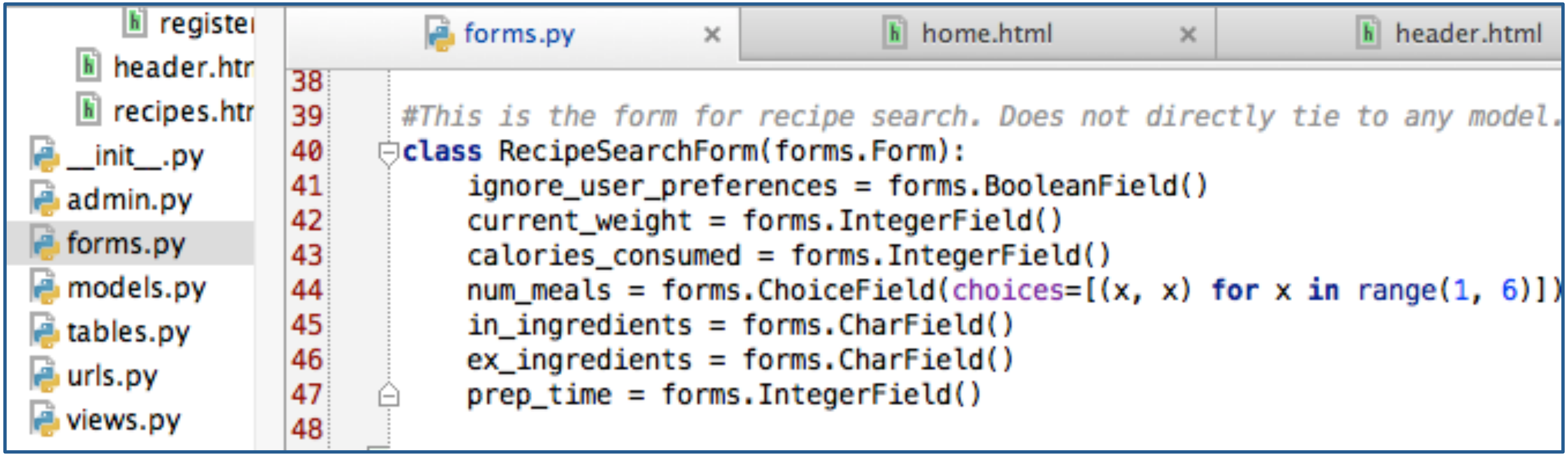
Django.forms Library

- easy to write form objects
- predefined field types
- works with Django template language
- simple form validation



```python

#This is the form for recipe search. Does not directly tie to any model.
class RecipeSearchForm(forms.Form):
    ignore_user_preferences = forms.BooleanField()
    current_weight = forms.IntegerField()
    calories_consumed = forms.IntegerField()
    num_meals = forms.ChoiceField(choices=[(x, x) for x in range(1, 6)])
    in_ingredients = forms.CharField()
    ex_ingredients = forms.CharField()
    prep_time = forms.IntegerField()

```

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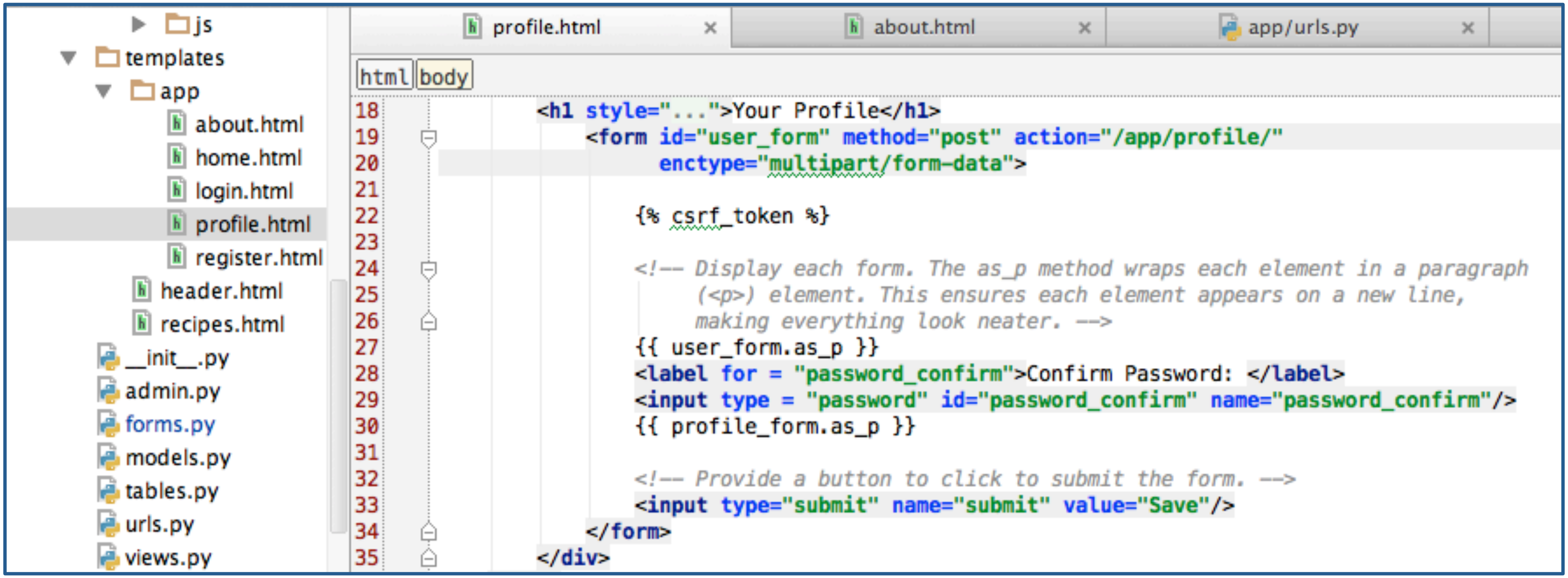
Forms in Templates



```
<h1 style="...">Your Profile</h1>
    <form id="user_form" method="post" action="/app/profile/"
          enctype="multipart/form-data">

        {% csrf_token %}

        <!-- Display each form. The as_p method wraps each element in a paragraph
             (<p>) element. This ensures each element appears on a new line,
             making everything look neater. -->
        {{ user_form.as_p }}
        <label for = "password_confirm">Confirm Password: </label>
        <input type = "password" id="password_confirm" name="password_confirm"/>
        {{ profile_form.as_p }}

        <!-- Provide a button to click to submit the form. -->
        <input type="submit" name="submit" value="Save"/>
    </form>
</div>
```

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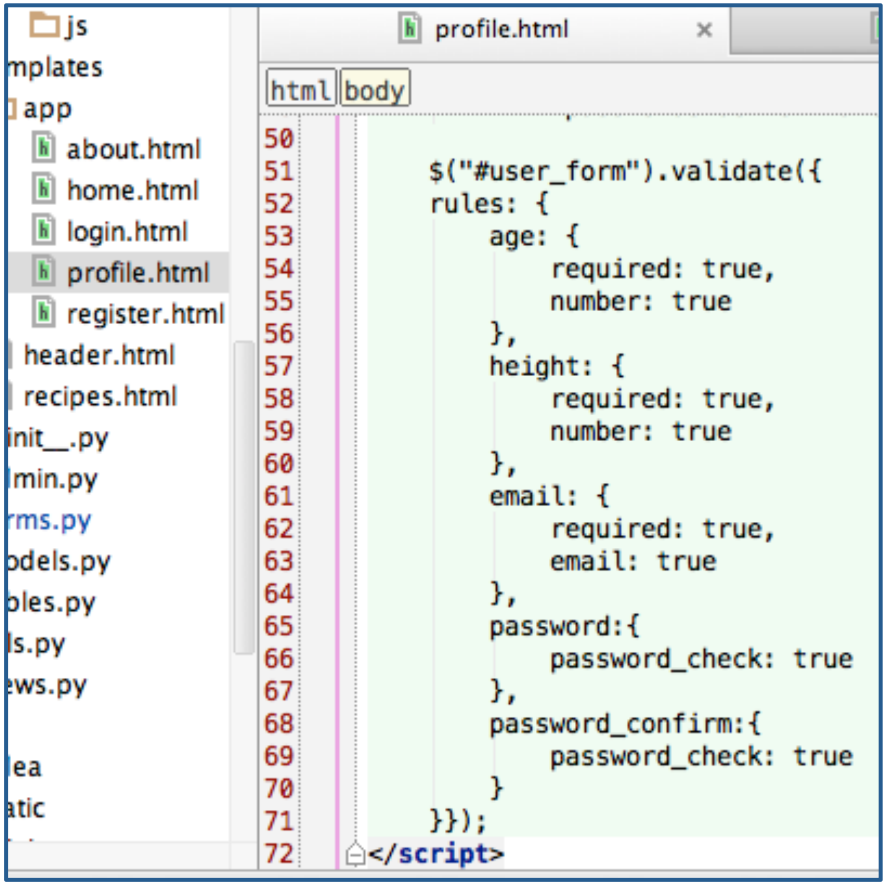
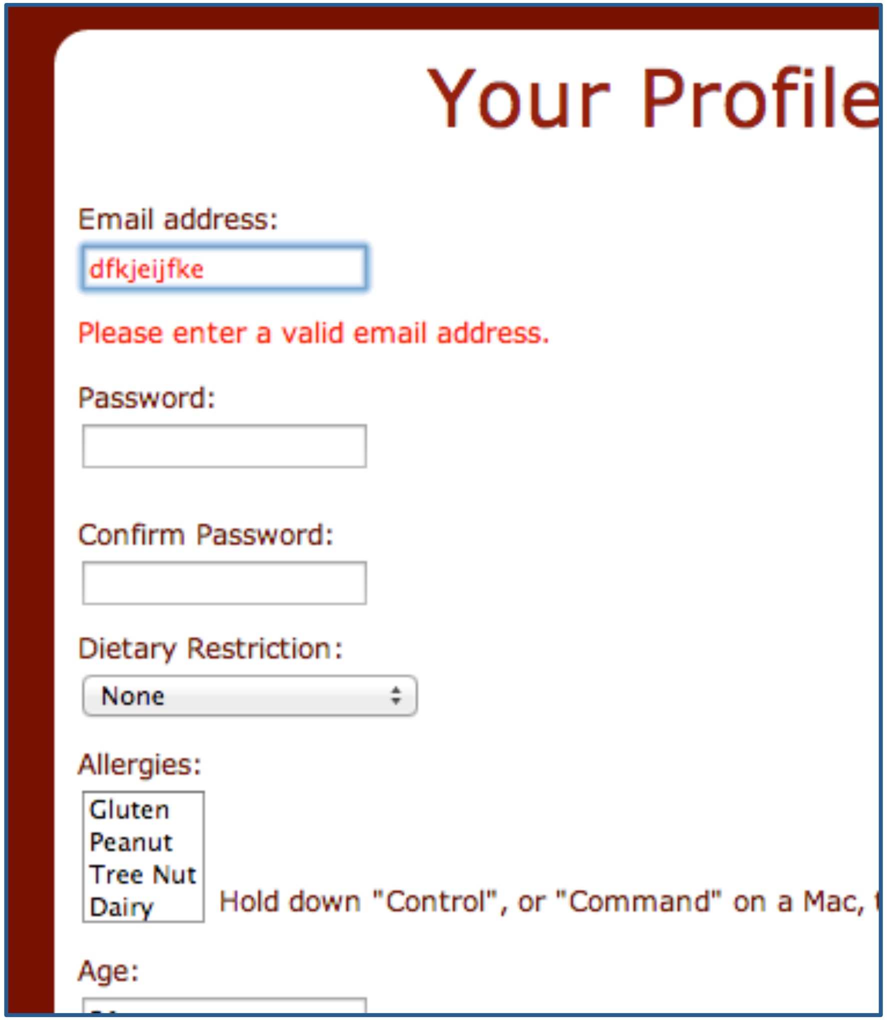
Form Validation



```
$("#user_form").validate({
rules: {
    age: {
        required: true,
        number: true
    },
    height: {
        required: true,
        number: true
    },
    email: {
        required: true,
        email: true
    },
    password:{
        password_check: true
    },
    password_confirm:{
        password_check: true
    }
}});
</script>
```



Your Profile

Email address:
dfkjeijfke

Please enter a valid email address.

Password:

Confirm Password:

Dietary Restriction:
None

Allergies:
Gluten
Peanut
Tree Nut
Dairy

Hold down "Control", or "Command" on a Mac,

Age:

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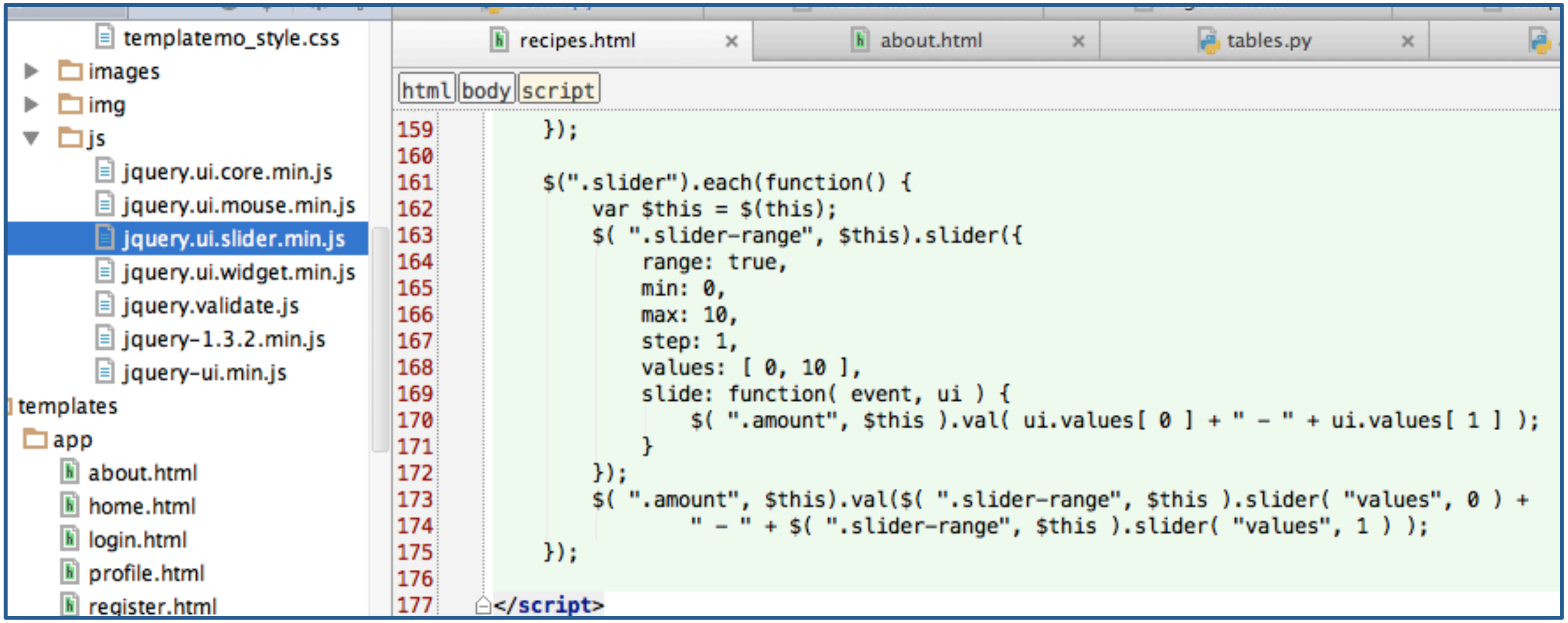
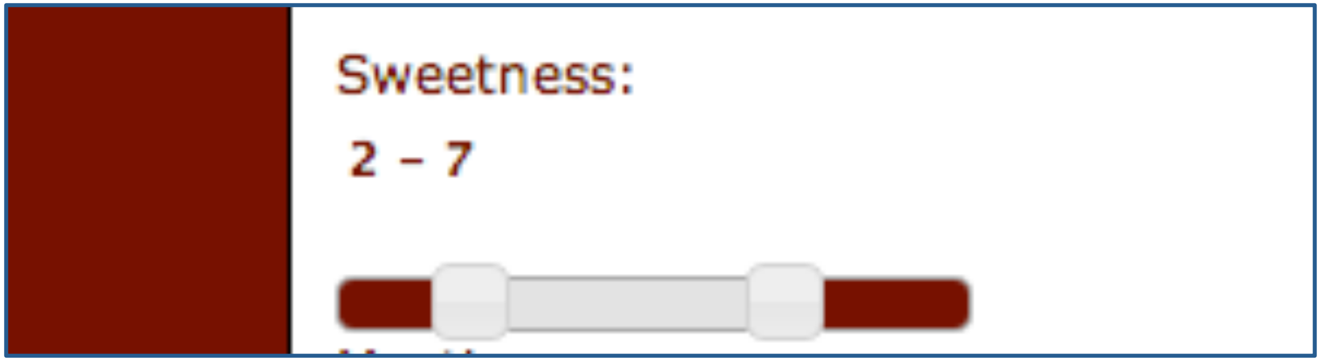
JQuery Widgets



```
    });

    $(".slider").each(function() {
        var $this = $(this);
        $( ".slider-range", $this).slider({
            range: true,
            min: 0,
            max: 10,
            step: 1,
            values: [ 0, 10 ],
            slide: function( event, ui ) {
                $( ".amount", $this ).val( ui.values[ 0 ] + " - " + ui.values[ 1 ] );
            }
        });
        $( ".amount", $this).val($( ".slider-range", $this ).slider( "values", 0 ) +
                " - " + $( ".slider-range", $this ).slider( "values", 1 ) );
    });

</script>
```


Sweetness:

2 - 7

Driver Program

- Assembles user settings and search preferences into an object that will return a dictionary to be submitted to the Yummly API.

  Function : Django_query_to_parameter_object
- Places user setting and search preferences into the object.

  Function : Search_recipies
- Gets max calories per meal from CalorieCalc Function.
- Sets diabetic parameters if user is diabetic.
- Submits the object to the Yummly API and returns the results.

Calculating Caloric Needs

- Basal Metabolic Rate (BMR): number of calories burned per day at rest
  - Calculated using height, weight, age and gender
- Men:
  - BMR = 66 + (6.23 * weight) + (12.7 * height) - (6.8 * age)
- Women:
  - BMR = 655 + (4.35 * weight) + (4.7 * height) - (4.7 * age)

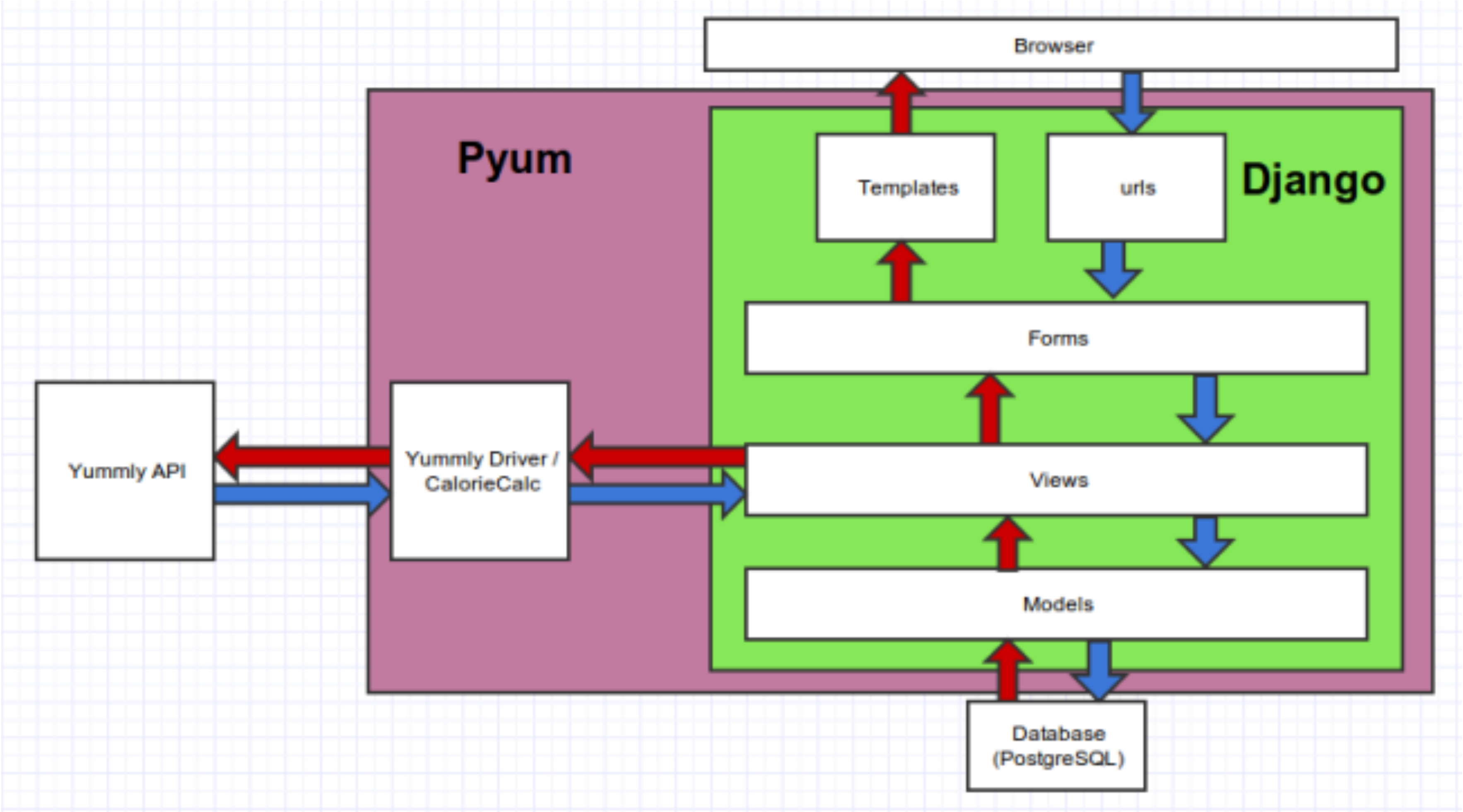
Harris-Benedict Equation

- Uses BMR and user's activity level to calculate Total Daily Energy Expenditure (TDEE).
  - Sedentary (little or no exercise):
    - TDEE = BMR * 1.2
  - Lightly Active (light exercise 1-3 days/week):
    - TDEE = BMR * 1.375
  - Moderately Active (moderate exercise 3-5 days/week):
    - TDEE = BMR * 1.55
  - Very Active (hard exercise twice per day):
    - TDEE = BMR * 1.9

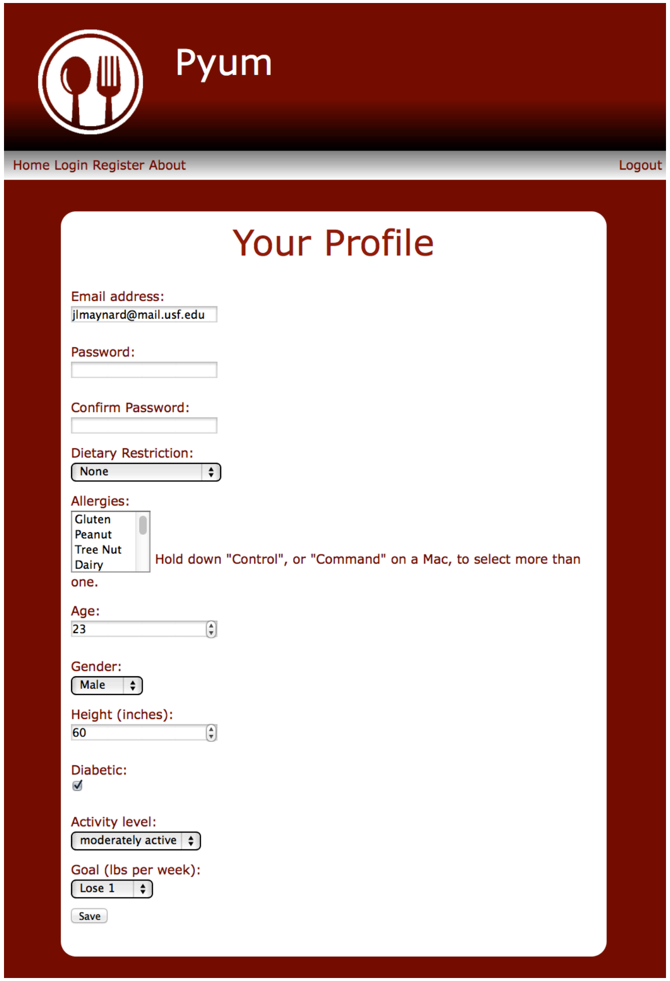
Weight Loss/Gain

- User can choose to maintain weight, or lose or gain weight at increments of ½, 1, or 2 pounds per week.
- To gain or lose weight, user must eat a certain amount of calories above or below their TDEE.
- 1 pound of fat ≈ 3500 calories
  - ½ pound = 250 calorie deficit/surplus per day
  - 1 pound = 500 calorie deficit/surplus per day
  - 2 pounds = 1000 calorie deficit/surplus per day

Django / Webserver



Demonstration



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Hold down "Control", or "Command" on a Mac, to select more than one.

Age:
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Gender:
Male

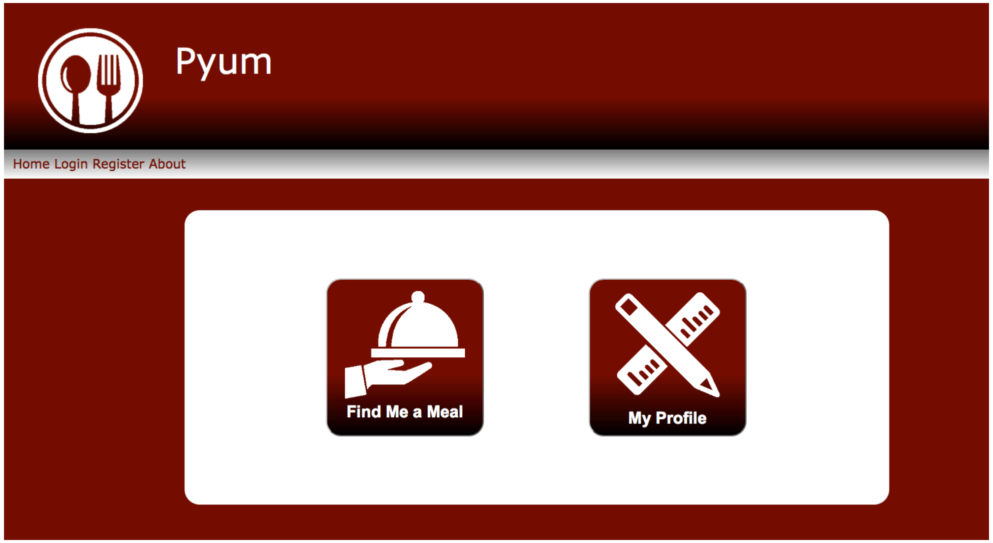
Height (inches):
60

Diabetic:
☑

Activity level:
moderately active

Goal (lbs per week):
Lose 1

Save



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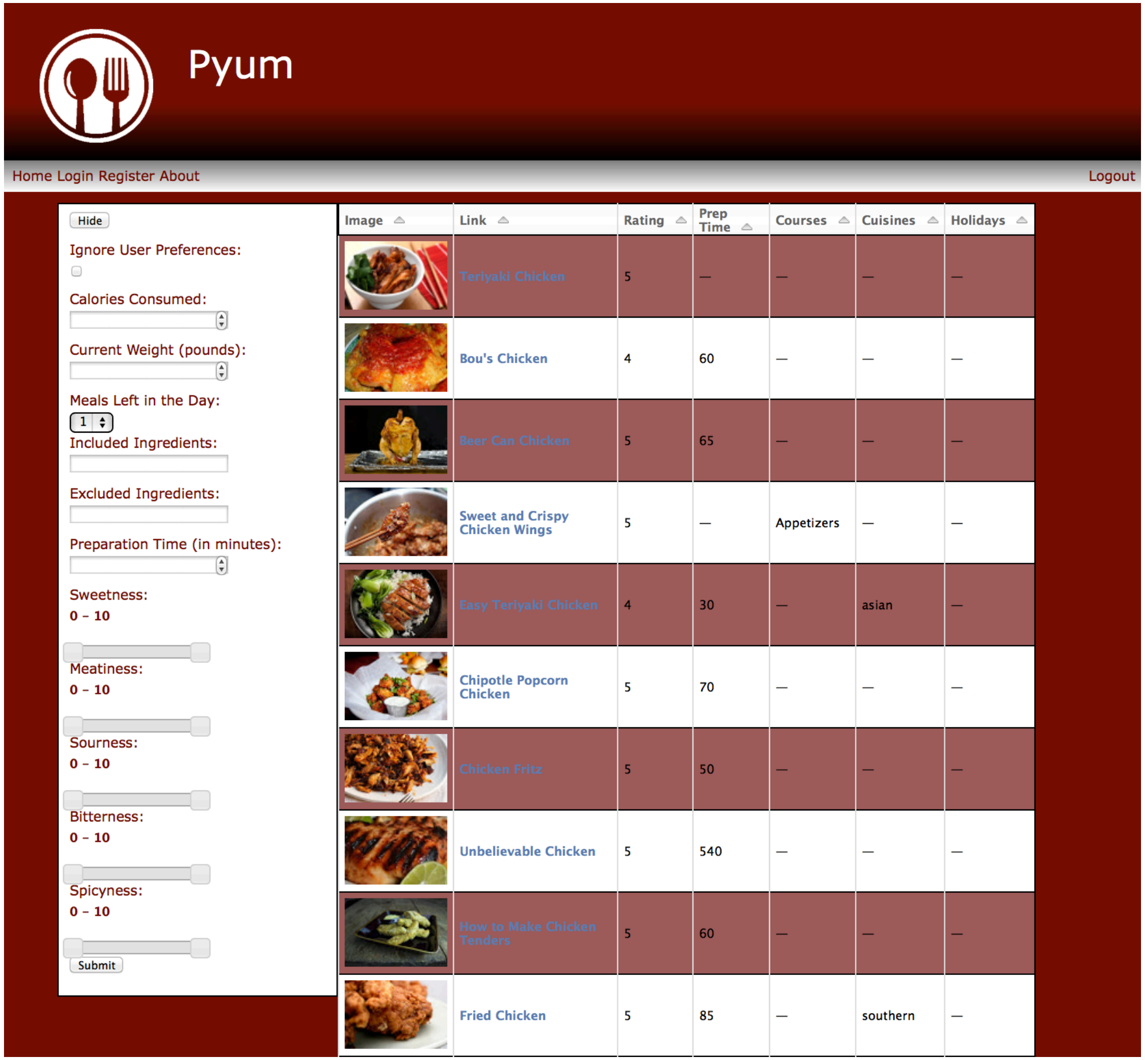

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Ignore User Preferences: □

Calories Consumed:

Current Weight (pounds):

Meals Left in the Day: 1

Included Ingredients:

Excluded Ingredients:

Preparation Time (in minutes):

Sweetness: **0 – 10**

Meatiness: **0 – 10**

Sourness: **0 – 10**

Bitterness: **0 – 10**

Spicyness: **0 – 10**

Image	Link	Rating	Prep Time	Courses	Cuisines	Holidays
	Teriyaki Chicken	5	—	—	—	—
	Bou's Chicken	4	60	—	—	—
	Beer Can Chicken	5	65	—	—	—
	Sweet and Crispy Chicken Wings	5	—	Appetizers	—	—
	Easy Teriyaki Chicken	4	30	—	asian	—
	Chipotle Popcorn Chicken	5	70	—	—	—
	Chicken Fritz	5	50	—	—	—
	Unbelievable Chicken	5	540	—	—	—
	How to Make Chicken Tenders	5	60	—	—	—
	Fried Chicken	5	85	—	southern	—

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Summary

- Functional implementation
- Django (python) front end
- Python backend
- flexibility