Московский государственный технический университет им. Н.Э. Баумана

Факультет «Радиотехнический»	
Кафедра «Системы обработки информации и управления	

Курс «Парадигмы и конструкции языков программирования»

Отчет по Домашнему заданию

«Создание сайта, используя фреймворк django»

Выполнил: Проверил:

студент группы РТ5-31Б: преподаватель кафедры ИУ5

Паншин М.В. Гапанюк Ю.Е.

Постановка задачи

В качестве домашнего задания предлагается выполнить проект «Вопросы и Ответы». Этот сервис позволит пользователям Интернета задавать вопросы и получать на них ответы. Возможности комментирования и голосования формируют сообщество и позволяет пользователям.

Требования к проекту

- 1. Структура проекта должна быть понятна пользователям. Переходы по страницам осуществляются по ссылкам. Обработка форм должна осуществляться с редиректом.
- 2. Код проекта должен быть аккуратным и без дублирования.
- 3. Верстка проекта должна быть выполнена с помощью css фреймворка Twitter Bootstrap.
- 4. Страницы проекты не должны отдаваться более 1 секунды.

Текст программы

Файл Views.py

```
from django.http import HttpResponse
from django.shortcuts import render
import copy
from django.core.paginator import Paginator
from app import models

def pagination(list, request, per_page = 5):
    page_num = request.GET.get('page',1)

    try:
        page_num = int(page_num)
    except ValueError:
        page_num = 1

    paginator = Paginator(list,per_page)
    page = paginator.page(page_num)
```

```
elided_page_range = page.paginator.get_elided_page_range(number =
page.number,on_each_side = 1, on_ends = 1)
    return {'list': page.object_list,
                   'page obj' : page,
                   'elided_page_range' : elided_page_range,
                   'ELLIPSIS' : paginator.ELLIPSIS}
def index (request):
    QUESTIONS = models.Question.objects.create_list()
    return render(request, template_name = 'index.html',
        context = pagination(QUESTIONS, request, 5)
def hot(request):
    HOT QUESTIONS = models.Question.objects.create list(sort by = "likes")
    return render(request,template_name = 'hot.html',
                  context = pagination(HOT QUESTIONS, request, 5))
def one_question(request, question_id):
    ANSWERS = models.Answer.objects.create_list(question_id = question_id)
    context = pagination(ANSWERS, request, per_page = 5)
    context['question'] = models.Answer.objects.get_question(question_id =
question id)
    return render(request, template_name = 'one_question.html',
                  context = context )
def ask(request):
    return render(request, template_name= 'ask.html'
def tag(request, tag):
    QUESTIONS = models.Question.objects.create_list(tag = tag)
    context = pagination(QUESTIONS, request, 10)
    context['tag'] = str(tag)
    return render(request, template_name='tag.html',
                  context = context)
def profile(request):
    return render(request,template_name="profile.html",
def login(request):
    return render(request,template_name="login.html",
def sigup(request):
   return render(request, template_name="signup.html",)
```

Файл Models.py

```
from django.db import models
from django.contrib.auth.models import User
from django.db.models import Count
class Profile(models.Model):
    user = models.OneToOneField(User,on_delete=models.CASCADE)
    nickname = models.CharField(max_length = 255)
    avatar = models.ImageField(blank = True, null = True)
    email = models.EmailField(max_length=255)
    created_at = models.DateTimeField(auto_now_add = True)
    updated_at = models.DateTimeField(auto_now = True)
    def __str__(self):
        return self.nickname
class TagManager(models.Manager):
    def get_popular_tags(self, number = 8):
        tags = Tag.objects.all().annotate(question_count =
Count("question")).order_by('-question_count')
        return [{'name':tag.name } for tag in tags[:number]]
class Tag(models.Model):
    name = models.CharField(max length = 50)
    created at = models.DateTimeField(auto now add = True)
    updated_at = models.DateTimeField(auto_now = True)
    objects = TagManager()
    def __str__(self):
       return self.name
class QuestionManager(models.Manager):
    def create_list(self, sort_by = 'created_at',tag = "none"):
        if sort_by == 'likes':
            ordering = '-like_count'
        else:
            ordering = '-created_at'
        if tag == 'none':
            questions = (Question.objects.all().annotate(like_count =
Count('questionlike')).order_by(ordering))
```

```
questions = (Question.objects.filter(tags name =
tag).annotate(like_count = Count('questionlike')).order_by(ordering))
        return [
           'author' : question.author.nickname,
            'likes' :question.like_count,
            "title": question.title,
            "id": question.id,
            "text": question.text,
            "tags": list(question.tags.all().values_list('name',flat = True)),
        } for question in questions.filter(author__nickname__startswith = "User")
class Question(models.Model):
   title = models.CharField(max length = 255)
   text = models.CharField(max length = 1024)
   author = models.ForeignKey(Profile, on_delete=models.CASCADE)
   tags = models.ManyToManyField(Tag)
   created_at = models.DateTimeField(auto_now_add = True)
   updated_at = models.DateTimeField(auto_now = True)
   objects = QuestionManager()
   def __str__(self):
        return self.title
class AnswerManager(models.Manager):
   def create_list(self,question_id):
        question = Question.objects.get(id=question_id)
        answers = (Answer.objects.filter(question = question).annotate(like_count
= Count('answerlike')).order_by('-like_count'))
        return [
           'author' : answer.author.nickname,
            'likes' :answer.like_count,
            "id": answer.id,
            "text": answer.text,
            "status" : answer.status,
            'question': question,
        } for answer in answers.filter(author nickname startswith = "User")
   def get_question(self,question_id):
        question = (Question.objects.all().annotate(like_count =
Count('questionlike'))).get(id = question_id)
       return {
```

```
'author' : question.author.nickname,
            'likes' :question.like_count,
            "title": question.title,
            "id": question.id,
            "text": question.text,
            "tags": list(question.tags.all().values_list('name',flat = True)),
class Answer(models.Model):
   STATUS CHOISES = [
        ('c','Corrrect'),
       ('w', 'Wrong'),
   text = models.TextField(max length = 1024)
   author = models.ForeignKey(Profile, on_delete=models.CASCADE)
   question = models.ForeignKey(Question, on_delete=models.CASCADE)
   status = models.CharField(max length = 10, choices = STATUS CHOISES)
   created_at = models.DateTimeField(auto_now_add = True)
   updated_at = models.DateTimeField(auto_now = True)
   objects = AnswerManager()
   def __str__(self):
        return f"Answer by {self.author.nickname} to {self.question.title}"
class AnswerLike(models.Model):
   answer = models.ForeignKey(Answer, on delete=models.CASCADE)
   user = models.ForeignKey(Profile, on_delete=models.CASCADE)
   created at = models.DateTimeField(auto now add = True)
   updated at = models.DateTimeField(auto now = True)
   class Meta:
        unique_together = ('user', 'answer')
class QuestionLike(models.Model):
   question = models.ForeignKey(Question, on delete=models.CASCADE)
   user = models.ForeignKey(Profile, on_delete=models.CASCADE)
   created at = models.DateTimeField(auto now add = True)
   updated at = models.DateTimeField(auto now = True)
   class Meta:
        unique_together = ('user', 'question')
```

Файл fill_db.py

```
from app import models
from django.core.management.base import BaseCommand
```

```
from django.contrib.auth.models import User
import random
class Command(BaseCommand):
    def add_arguments(self, parser):
        parser.add_argument('--ratio', type=int)
        super().add arguments(parser)
    def handle(self, *args, **options):
        ratio = options['ratio']
        users = [User(username=f'User {i}', email=f'user{i}@gmail.com') for i in
range(ratio)]
        User.objects.bulk_create(users)
        users = User.objects.filter(username__startswith='User')
        profiles = [models.Profile(user=user, nickname=user.username,
email=user.email) for user in users]
        models.Profile.objects.bulk create(profiles)
        profiles = list(models.Profile.objects.all())
        tags = [models.Tag(name=f'Tag #{i}') for i in range(ratio)]
        models.Tag.objects.bulk_create(tags)
        tags = list(models.Tag.objects.all())
        questions = [
            models.Question(
                title=f'Title for question {i}',
                text=f'This is text for question {i}',
                author=profiles[i % ratio],
            ) for i in range(ratio * 10)
        models.Question.objects.bulk create(questions)
        questions =
list(models.Question.objects.select_related('author').prefetch_related('tags').al
1())
        tags_len = len(tags)
        for item in range(len(questions)) :
            selected_tags = [tags[item % tags_len],tags[(item + 1) %
tags_len],tags[(item + 1) % tags_len]]
            questions[item].tags.set(selected tags)
        for j in range (10):
            answers = [
               models.Answer(
```

```
text=f'This is text for answer {i}',
                    author=profiles[i % ratio],
                    question=questions[i % (ratio * 10)],
                    status='c' if i % 10 == 4 else 'w',
                ) for i in range(j * ratio * 10,(j+1) * ratio * 10)
            models.Answer.objects.bulk create(answers)
            print(f"{j} part of answers has been uploaded")
        answers = list(models.Answer.objects.select related('author',
 question').all())
        question likes = [
            models.QuestionLike(
                user=profiles[i // (ratio * 10)],
                question=questions[i % (ratio * 10)],
            ) for i in range(ratio * 9 * 10)
        models.QuestionLike.objects.bulk_create(question_likes,batch_size = 1000)
        answer likes = [
            models.AnswerLike(
                user=profiles[i // (ratio * 100)],
                answer=answers[i % (ratio * 100)],
            ) for i in range(ratio * 10 * 13)
        models.AnswerLike.objects.bulk_create(answer_likes,batch_size = 1000)
        question_like_ids = list(models.QuestionLike.objects.values_list('id',
flat=True))
        random.shuffle(question_like_ids)
        random likes ids = question like ids[:ratio * 10]
        models.QuestionLike.objects.filter(id__in=random_likes_ids).delete()
```

Файл answer.html

```
<h5>{{answer.author}}</h5>
       </div>
          <input class="form-control mb-2" type="number" value = {{answer.likes}}</pre>
placeholder="Likes" aria-label="default input example">
        </div>
    </div>
          <div class="col-9">
           <div class="d-flex flex-column justify-content-between" style =</pre>
"height: 100%;">
             {{answer.text}} 
              <div class="form-check mb-3">
               <input class="form-check-input" {% if answer.status == 'c' %}</pre>
checked {%endif%} type="checkbox" value="" id="flexCheckDefault">
               <label class="form-check-label" for="flexCheckDefault">
                  Correct!
               </label>
           </div>
         </div>
       </div>
      </div>
    </div>
  </div>
```

Файл base.html

```
{% load static %}
<!doctype html>
<html lang="en">
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>base</title>
    <link rel="stylesheet" href={% static "css/bootstrap.min.css" %}>
    <style>
    </style>
  </head>
  <body>
    <header>
        <div class="d-flex align-items-center justify-content-between mb-5 p-3"</pre>
style = "border-bottom: 1px solid black;">
          <a href="{% url "index" %}" class="badge rounded-pill text-bg-success")</pre>
m-3" style="font-size: 30px; text-decoration: none;">
            AskPupkin
          </a>
              <form class="d-flex" role="search">
                 <input class="form-control me-2" type="search"</pre>
placeholder="Search" aria-label="Search">
                 <a class="btn btn-outline-success" type="submit" href = "{% url</pre>
"ask" %}" >Ask</a>
```

```
</form>
         <div class="d-flex gap-2">
           {% block profile %}
           {% endblock profile %}
         </div>
      </div>
   </header>
   <main class="container mt-3">
      <div class="row">
           <div class="col-9 px-5">
              {% block content %}
              {% endblock %}
           </div>
           <div class="col-3">
              <section class="mb-2">
                 <h2>Popular Tags</h2>
                 <div class= "d-flex flex-wrap gap-2">
                  {% for tag in popular_tags %}
                    <a href = "{% url "tag" tag=tag.name %}"type="button"</pre>
class="btn btn-outline-success">{{tag.name}}</a>
                  {% endfor %}
                 </div>
              </section>
              <section>
                 <h2>Best Members</h2>
                 <a href="#">Member
1</a>
                    <a href="#">Member 2</a>
<a href="#">Member
3</a>
                    <a href="#">Member 4</a>
<a href="#">Member
5</a>
                  </section>
      </div>
   </main>
```

Файл pagination.py

```
{% load static %}
<nav aria-label="Page navigation ">
  %}">
     <a class="page-link" href="{% if page_obj.has_previous %}</pre>
?page={{page_obj.previous_page_number}} {% endif %}" aria-label="Previous">
      <span aria-hidden="true">&laquo;</span>
     </a>
   {% for p in elided_page_range %}
        {% if p == ELLIPSIS %}
          <a class="page-link" href="?page={{ p }}">{{ p }}</a>
          {% else %}
        %}">
          <a class="page-link" href="?page={{ p }}">{{ p }}</a>
        {% endif %}
     {% endfor %}
    <a class="page-link" href="{% if page obj.has next %}</pre>
?page={{page_obj.next_page_number}} {% endif %}" aria-label="Next">
      <span aria-hidden="true">&raquo;</span>
     </a>
   </nav>
```

Файл question.html

```
<div class = "d-flex flex-column" style = "height: 100%;">
            <div style="height: auto; width: 120px;" class="m-1 mt-3">
              <img src="{% static 'img/i2.jpg' %}" class="img-thumbnail"</pre>
alt="Avatar">
            </div>
            <div class = "m-2" style="text-align: center;">
                <h5>{{question.author}}</h5>
            </div>
                <input class="form-control my-3" type="number" value =</pre>
{{question.likes}} placeholder="Likes" aria-label="default input example">
        </div>
     </div>
      <div class="col-9">
        <div class="card-body d-flex flex-column" style="padding-top: 0; height:</pre>
100%;">
          <a class="card-title" href="{% url "one_question" question.id %}"</pre>
style="font-size: 30px;">{{ question.title }}</a>
          {{ question.text}} 
          <div class="d-flex gap-5 mt-auto">
            <a href="{% url "one question" question.id %}" class="card-link">
Answers (10) </a>
            <div>
              Tags:{% for tag in question.tags %}
                <a role="button" class="btn btn-sm btn-success" style =</pre>
"background-color: #" href = "{% url "tag" tag=tag %}">{{tag}}</a>
                {% endfor %}
            </div>
         </div>
       </div>
      </div>
    </div>
  </div>
```

Файл ask.html

```
<form class="d-flex flex-column gap-3">
      <div class="row mb-3 d-flex align-items-center">
        <label for="questionTitle" class="col-sm-2 col-form-label">Title</label>
        <div class="col-sm-10">
          <input type="text" class="form-control" id="questionTitle"</pre>
placeholder="Enter question title">
        </div>
     </div>
      <div class="row mb-3">
        <label for="questionText" class="col-sm-2 col-form-label">Text</label>
        <div class="col-sm-10">
          <textarea class="form-control" id="questionText" rows="5"
placeholder="Write your question here"></textarea>
        </div>
      </div>
      <div class="row mb-3 d-flex align-items-center">
        <label for="tags" class="col-sm-2 col-form-label">Tags</label>
        <div class="col-sm-10">
          <input type="text" class="form-control" id="tags" placeholder="Add tags</pre>
here, using a comma ">
       </div>
      </div>
      <div class="row">
        <div class="col-sm-2"></div>
        <div class="col-sm-10">
            <a class="btn btn-outline-success" type="submit" href="#" >Ask</a>
        </div>
      </div>
    </form>
  </div>
{% endblock content %}
```

Файл hot.html

```
{% extends "layouts/base.html" %}
{% load static %}

{% block profile %}
    {% include "layouts/not_authorized.html" %}
{% endblock profile %}
```

Файл index.html

```
{% extends "layouts/base.html" %}
{% load static %}
{% block profile %}
  {% include "layouts/not authorized.html" %}
{% endblock profile %}
{% block content %}
<div class="d-flex gap-3 align-items-center mb-4 " >
   <div class = "d-flex align-items-center gap-3">
      <h2> New Questions</h2>
     <a href ="{% url "hot" %}"> Hot questions</a>
    </div>
</div>
{% for question in list %}
 {% include "layouts/question.html" %}
{% endfor %}
{% include "layouts/pagination.html" %}
{% endblock content %}
```

Файл login.html

```
{% extends "layouts/base.html" %}

{% block profile %}
  {% include "layouts/not_authorized.html" %}
```

```
{% endblock profile %}
{% block content %}
<div >
    <h2>Log In</h2>
</div>
  <div class="container mt-4">
    <form class="d-flex flex-column gap-3">
      <div class="row mb-3 d-flex align-items-center">
        <label for="questionTitle" class="col-sm-2 col-form-label">Login</label>
        <div class="col-sm-4">
            <input type="text" class="form-control" required placeholder = "Enter</pre>
login">
        </div>
     </div>
     <div class="row mb-3 d-flex align-items-center">
        <label for="questionTitle" class="col-sm-2 col-form-</pre>
label">Password</label>
        <div class="col-sm-4">
            <input type="password" class="form-control" id="password"</pre>
minlength="8" required>
        </div>
      </div>
      <div class="row">
        <div class="col-sm-2"></div>
        <div class="col-sm-4">
            <div class = "d-flex justify-content-center">
            <a class="btn btn-success" type="submit" href="#" >Log In</a>
            </div>
        </div>
      </div>
      <div class="row">
        <div class="col-sm-2"></div>
        <div class="col-sm-4">
            <div class = "d-flex justify-content-center">
            <a class="btn btn-sm btn-outline-success" type="submit" href="#"</pre>
>Create new account</a>
            </div>
        </div>
      </div>
    </form>
  </div>
```

Файл one_question.html

```
{% extends "layouts/base.html" %}
{% block profile %}
  {% include "layouts/authorized.html" %}
{% endblock profile %}
{% block content %}
<div class="row" style="border-bottom: 1px solid black;">
    {% include 'layouts/question.html' %}
</div>
{% for answer in list %}
  {% include "layouts/answer.html" %}
{% endfor %}
<div class="row d-flex align-items-center pt-5 mb-4" style="border-top: 1px solid")</pre>
black;">
          <textarea class="form-control" id="questionText" rows="5"</pre>
style="resize: none;" placeholder="Enter your answer here.."></textarea>
</div>
{% include "layouts/pagination.html" %}
{% endblock content %}
```

Файл profile.html

```
<div class="row mb-3 d-flex align-items-center">
        <label for="questionTitle" class="col-sm-2 col-form-label">Login</label>
        <div class="col-sm-4">
          <input type="text" class="form-control" id="questionTitle"</pre>
placeholder="Enter Login">
        </div>
      </div>
     <div class="row mb-3 d-flex align-items-center">
        <label for="questionTitle" class="col-sm-2 col-form-label">Email</label>
        <div class="col-sm-4">
          <input type="text" class="form-control" id="questionTitle"</pre>
placeholder="Enter Email">
        </div>
     </div>
      <div class="row mb-3 d-flex align-items-center">
        <label for="tags" class="col-sm-2 col-form-label">NickName</label>
        <div class="col-sm-4">
          <input type="text" class="form-control" id="tags" placeholder="Write</pre>
youre nickname here">
       </div>
     </div>
      <div class="row mb-3 d-flex ">
        <label for="questionTitle" class="col-sm-2 col-form-label">Upload
Avatar</label>
        <div class="col-sm-6 d-flex flex-column" >
            <div style="height: 150px; width: 150px;" class="m-2 border border-2</pre>
rounded-3">
                <img src="" class="img-fluid" alt="Avatar">
              </div>
              <div class="input-group d-flex gap-3">
                <input type="file" class="form-control" id="inputGroupFile04"</pre>
aria-describedby="inputGroupFileAddon04" aria-label="Upload">
                <button class="btn btn-outline-secondary" type="button"</pre>
id="inputGroupFileAddon04">Choose</button>
              </div>
        </div>
      </div>
      <div class="row">
        <div class="col-sm-2"></div>
        <div class="col-sm-10">
            <a class="btn btn-outline-success" type="submit" href="#" >Save</a>
        </div>
      </div>
```

```
</form>
</div>
{% endblock content %}
```

Файл signup.html

```
{% extends "layouts/base.html" %}
{% block profile %}
  {% include "layouts/not authorized.html" %}
{% endblock profile %}
{% block content %}
    <h2>Settings: Dr.Pepper</h2>
</div>
<div class="container mt-4">
    <form class="d-flex flex-column gap-3">
      <div class="row mb-3 d-flex align-items-center">
        <label for="questionTitle" class="col-sm-2 col-form-label">Login</label>
        <div class="col-sm-4">
          <input type="text" class="form-control" required minlength = 5</pre>
placeholder="Enter Login">
        </div>
     </div>
     <div class="row mb-3 d-flex align-items-center">
        <label for="questionTitle" class="col-sm-2 col-form-label">Email</label>
        <div class="col-sm-4">
          <input type="text" class="form-control" required minlength = 10</pre>
placeholder="Enter Email">
        </div>
      </div>
      <div class="row mb-3 d-flex align-items-center">
        <label for="tags" class="col-sm-2 col-form-label">NickName</label>
        <div class="col-sm-4">
          <input type="text" class="form-control" required minlength = 5</pre>
placeholder="Write youre nickname here">
        </div>
      </div>
      <div class="row mb-3 d-flex align-items-center">
```

```
<label for="questionTitle" class="col-sm-2 col-form-</pre>
label">Password</label>
        <div class="col-sm-4">
            <input type="password" class="form-control" minlength="8" required>
            <div class="invalid-feedback">
              Your password must be at least 8 characters long.
            </div>
        </div>
      </div>
      <div class="row mb-3 d-flex align-items-center">
        <label for="questionTitle" class="col-sm-2 col-form-label">Repeat
password</label>
        <div class="col-sm-4">
            <input type="password" class="form-control" minlength="8" required>
        </div>
      </div>
      <div class="row mb-3 d-flex ">
        <label for="questionTitle" class="col-sm-2 col-form-label">Upload
Avatar</label>
        <div class="col-sm-6 d-flex flex-column" >
              <div class="input-group d-flex gap-3">
                <input type="file" class="form-control" aria-label="Upload">
                <button class="btn btn-outline-secondary" type="button"</pre>
id="inputGroupFileAddon04">Choose</button>
              </div>
        </div>
      </div>
      <div class="row">
        <div class="col-sm-2"></div>
        <div class="col-sm-4">
            <div class = "d-flex justify-content-center">
            <button class="btn btn-success" type="submit" >Register</button>
            </div>
        </div>
      </div>
      <div class="row">
        <div class="col-sm-2"></div>
        <div class="col-sm-4">
            <div class = "d-flex justify-content-center">
            <a class="btn btn-sm btn-outline-success" href="{% url "login" %}"</pre>
>Already have an account? Log in </a>
            </div>
        </div>
      </div>
```

```
</form>
</div>
{% endblock content %}
```

Файл tag.html

Результаты программы



















