Министерство образования Республики Беларусь

Белорусский Национальный Технический Университет

Факультет информационных технологий и робототехники

Кафедра «Программное обеспечение информационных

систем и технологий»

**Отчёт**

по лабораторной работе № 11

по дисциплине ***«Языки программирования»***

тема: **«Разработка игры с графическим интерфейсом»**

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Минск 2019

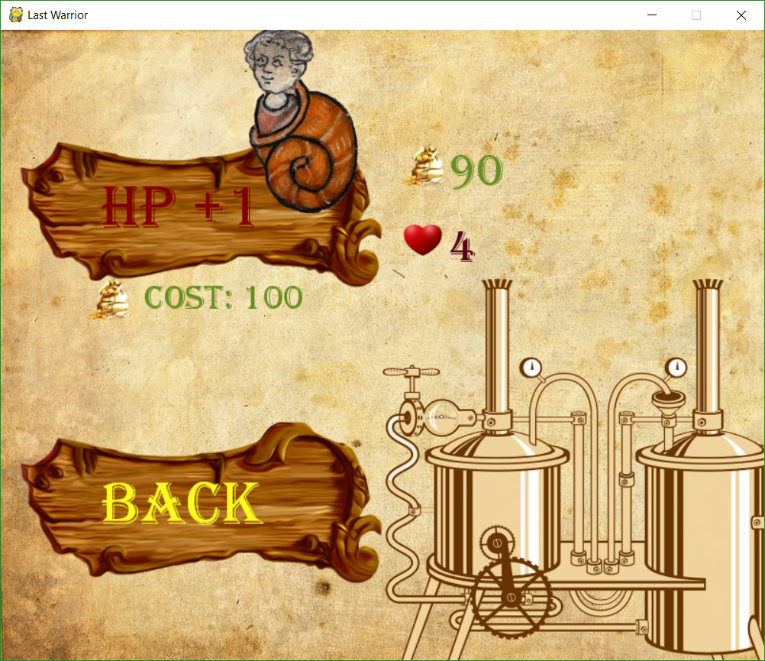
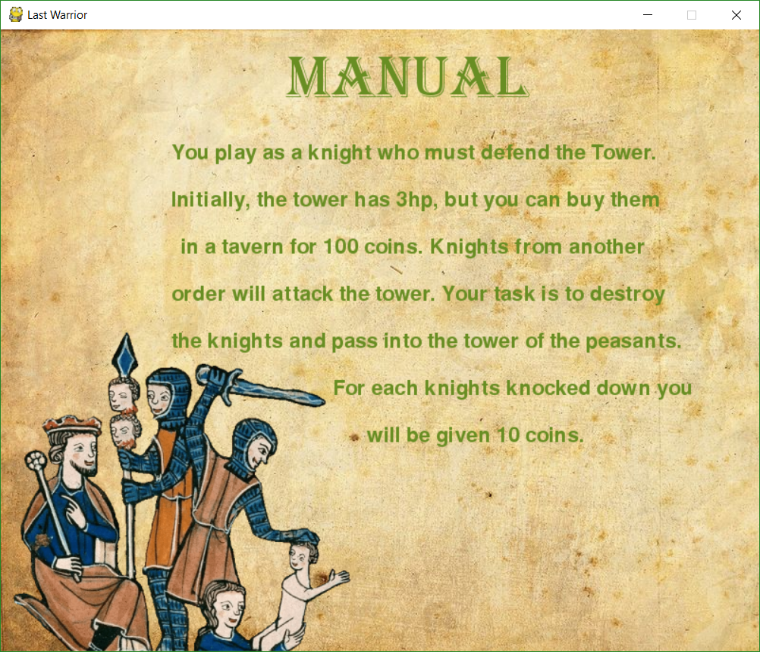
Лабораторная работа № 11

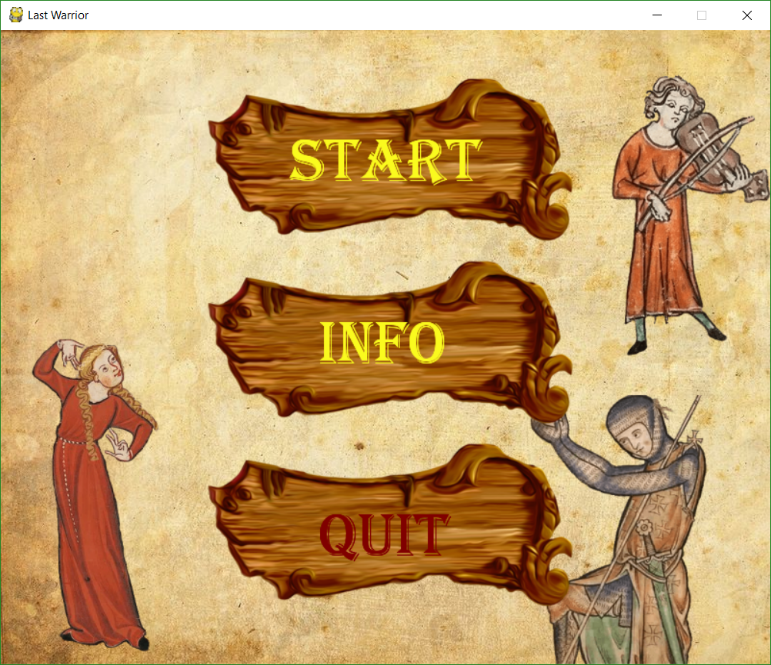
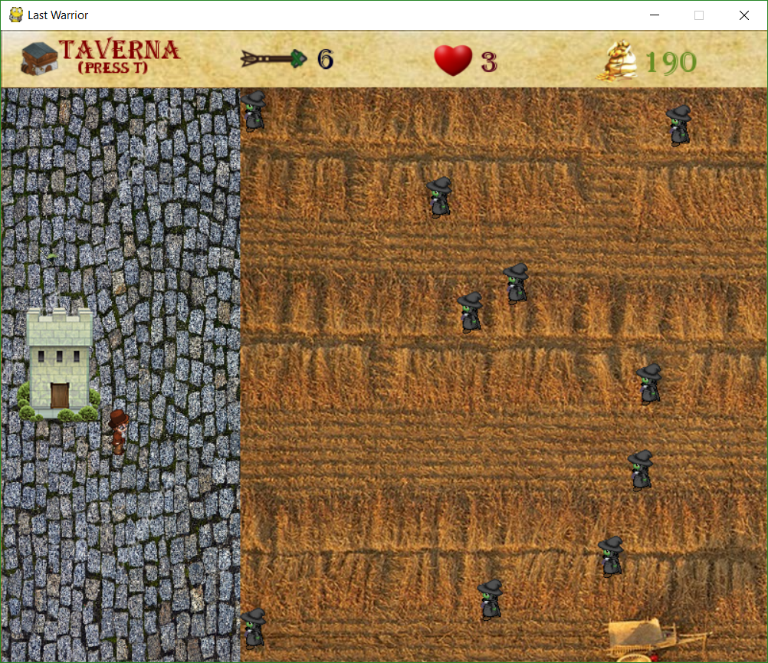
**«Разработка игры с графическим интерфейсом»**

**Цель работы:** *приобрести навыки работы с графическим интерфейсом на Python и закрепить их на примере разработки интерактивной игры с графическим интерфейсом с помощью библиотеки PyGame .*

**Основное задание**

Разработать программу(игру) посредством библиотеки PyGame. Реализовать её логику и наглядность реализации.

**Результаты выполнения основного задания:**



**Листинг основных программ:**

Файл MAIN.py

**from** pygame **import \*  
from** menu **import \*  
from** tavern **import \*  
from** class\_list **import \*  
from** iintersect **import \*  
from** death **import \*  
from** random **import** randrange  
  
init**()  
  
  
class Animation(**object**):  
  
 def \_\_init\_\_(**self, sprites\_r**=None**, sprites\_u**=None**, sprites\_d**=None**, timer**=**100**):** self.sprites\_r **=** sprites\_r  
 self.sprites\_u **=** sprites\_u  
 self.sprites\_d **=** sprites\_d  
 self.time **=** timer  
 self.work\_time **=** 0  
 self.skip\_frame **=** 0  
 self.frame **=** 0  
  
 **def update\_r(**self, dt**):** self.work\_time **+=** dt  
 self.skip\_frame **=** self.work\_time **//** self.time  
 **if** self.skip\_frame **>** 0**:** self.work\_time **=** self.work\_time **%** self.time  
 self.frame **+=** self.skip\_frame  
 **if** self.frame **>=** len**(**self.sprites\_r**):** self.frame **=** 0  
  
 **def update\_u(**self, dt**):** self.work\_time **+=** dt  
 self.skip\_frame **=** self.work\_time **//** self.time  
 **if** self.skip\_frame **>** 0**:** self.work\_time **=** self.work\_time **%** self.time  
 self.frame **+=** self.skip\_frame  
 **if** self.frame **>=** len**(**self.sprites\_u**):** self.frame **=** 0  
  
 **def update\_d(**self, dt**):** self.work\_time **+=** dt  
 self.skip\_frame **=** self.work\_time **//** self.time  
 **if** self.skip\_frame **>** 0**:** self.work\_time **=** self.work\_time **%** self.time  
 self.frame **+=** self.skip\_frame  
 **if** self.frame **>=** len**(**self.sprites\_u**):** self.frame **=** 0  
  
 **def static(**self**):  
 return** self.sprites\_r**[**0**]  
  
 def get\_sprite\_r(**self**):  
 return** self.sprites\_r**[**self.frame**]  
  
 def get\_sprite\_d(**self**):  
 return** self.sprites\_d**[**self.frame**]  
  
 def get\_sprite\_u(**self**):  
 return** self.sprites\_u**[**self.frame**]  
  
  
class Zomb(**object**):  
  
 def \_\_init\_\_(**self, x\_zomb, y\_zomb, sprites\_r**=None**, timer**=**100**):** self.sprites\_r **=** sprites\_r  
 self.time **=** timer  
 self.work\_time **=** 0  
 self.skip\_frame **=** 0  
 self.frame **=** 0  
 self.check **= False** self.x\_zomb **=** x\_zomb  
 self.y\_zomb **=** y\_zomb  
  
 **def update\_r(**self, dt**):** self.work\_time **+=** dt  
 self.skip\_frame **=** self.work\_time **//** self.time  
 **if** self.skip\_frame **>** 0**:** self.work\_time **=** self.work\_time **%** self.time  
 self.frame **+=** self.skip\_frame  
 **if** self.frame **>=** len**(**self.sprites\_r**):** self.frame **=** 0  
  
 **def get\_sprite\_r(**self**):  
 return** self.sprites\_r**[**self.frame**]  
  
 def static(**self**):  
 return** self.sprites\_r**[**0**]  
  
  
"""Константы"""**START\_POINT **=** 0  
  
ARROW\_ST\_X **=** 250  
ARROW\_ST\_Y **=** 20  
  
X\_TOWER **= -**5  
Y\_TOWER **=** 230  
  
X\_TAVERN **=** 20  
Y\_TAVERN **=** 10  
  
LENGTH\_SCREEN\_TOWN **=** 250  
WIDTH\_SCREEN\_TOWN **=** 600  
  
LENGTH\_SCREEN\_FIELD **=** 550  
WIDTH\_SCREEN\_FIELD **=** 600  
  
LENGTH\_WINDOW **=** 800  
WIDTH\_WINDOW **=** 660  
  
LENGTH\_INFO **=** 800  
WIDTH\_INFO **=** 60  
  
**"""Звуки"""**mixer.pre\_init**(**44100, **-**16, 1, 512**)**mixer.init**()**music\_battle **= "battle.ogg"**sound\_hit **= "hit.ogg"**track\_battle **=** mixer.Sound**(**music\_battle**)**track\_hit **=** mixer.Sound**(**sound\_hit**)  
  
"""Текстуры"""**bg\_arrow\_static **=** image.load**("Arrow1.png")**bg\_grass **=** image.load**("bg\_grass2.png")**bg\_pergament **=** image.load**("bg\_pergament.png")**bg\_town **=** image.load**("bg\_town.png")**tower **=** image.load**("tower.png")**gold **=** image.load**("gold.png")**heart **=** image.load**("heart.png")**bg\_win **=** image.load**("bg\_win.png")**bg\_tavern **=** image.load**("bg\_tavern.png")**bg\_died **=** image.load**("bg\_died.png")**backgrownd **=** image.load**("Back.png")**bg\_arrow **= "Arrow2.png"  
  
"""Создание игроовой поеверхности"""**window **=** display.set\_mode**((**LENGTH\_WINDOW, WIDTH\_WINDOW**))**display.set\_caption**("Last Warrior")**town **=** Surface**((**LENGTH\_SCREEN\_TOWN, WIDTH\_SCREEN\_TOWN**))**field **=** Surface**((**LENGTH\_SCREEN\_FIELD, WIDTH\_SCREEN\_FIELD**))**info\_string **=** Surface**((**LENGTH\_INFO, WIDTH\_INFO**))  
  
"""Создание меню"""**positions **= [(**300, 100, **u"Start"**, **(**250, 250, 30**)**, **(**128, 0, 0**)**, 0**)**,  
 **(**330, 290, **u"Info"**, **(**250, 250, 30**)**, **(**128, 0, 0**)**, 1**)**,  
 **(**330, 490, **u"Quit"**, **(**250, 250, 30**)**, **(**128, 0, 0**)**, 2**)]**menu **=** Menu**(**positions**)**menu.start\_menu**(**window, bg\_win**)  
  
"""Создание таверны"""**tavern\_option **= [(**105, 150, **u"HP +1"**, **(**250, 250, 30**)**, **(**128, 0, 0**)**, 0**)**,  
 **(**105, 460, **u"Back"**, **(**250, 250, 30**)**, **(**128, 0, 0**)**, 1**)]**tavern\_menu **=** Tavern**(**tavern\_option**)  
  
"""Задание текстур персоонажа"""**sprite\_z **=** image.load**("zomb.png")**.convert\_alpha**()**sprite\_h\_r **=** image.load**("hero.png")**.convert\_alpha**()**sprite\_h\_u **=** image.load**("hero\_u.png")**.convert\_alpha**()**sprite\_h\_d **=** image.load**("hero\_d.png")**.convert\_alpha**()  
  
"""Создание текстовых переменных"""**font.init**()**health **=** font.SysFont**("Algerian"**, 32**)**coins **=** font.SysFont**("Algerian"**, 32**)**tavern **=** font.SysFont**("Algerian"**, 28**)**tavern\_f **=** font.SysFont**("Algerian"**, 16**)**arrow **=** font.SysFont**("Algerian"**, 32**)**press\_e **=** font.SysFont**("Algerian"**, 32**)  
  
"""Создание стерл, выпускаемых героем"""**x\_arrow **= -**100  
y\_arrow **=** 0  
arr **=** Object**(**x\_arrow, ARROW\_ST\_Y, bg\_arrow**)**arr1 **=** Object**(**x\_arrow, ARROW\_ST\_Y, bg\_arrow**)**arr2 **=** Object**(**x\_arrow, ARROW\_ST\_Y, bg\_arrow**)**arr3 **=** Object**(**x\_arrow, ARROW\_ST\_Y, bg\_arrow**)**counter\_tower **=** 15  
counter\_hero **=** 0  
  
**"""Создание зомби"""**anim\_z **= []**anim\_z.append**(**sprite\_z.subsurface**((**0, 0, 31, 48**)))**anim\_z.append**(**sprite\_z.subsurface**((**31, 0, 31, 48**)))**anim\_z.append**(**sprite\_z.subsurface**((**62, 0, 31, 48**)))**anim\_z.append**(**sprite\_z.subsurface**(**95, 0, 31, 48**))**x\_zomb **=** 860  
y\_zomb **= None**timer\_z **=** 180  
AMOUNT\_OF\_ZOMB **=** 15  
zombs **= []**zomb **= None**speed **=** 0  
zomb\_on\_the\_field **=** 0  
  
**for** i **in** range**(**10**):** x\_zomb **=** 860  
 y\_zomb **=** 60  
 zombarik **=** Zomb**(**x\_zomb, y\_zomb **+** i **\*** 60, anim\_z, timer\_z**)** zombs.append**(**zombarik**)  
  
"""Создание анимированного ГЕРОЯ"""**anim\_h\_r **= []**anim\_h\_r.append**(**sprite\_h\_r.subsurface**((**0, 0, 33, 48**)))**anim\_h\_r.append**(**sprite\_h\_r.subsurface**((**33, 0, 33, 48**)))**anim\_h\_r.append**(**sprite\_h\_r.subsurface**((**66, 0, 33, 48**)))**anim\_h\_r.append**(**sprite\_h\_r.subsurface**(**99, 0, 29, 48**))**anim\_h\_u **= []**anim\_h\_u.append**(**sprite\_h\_u.subsurface**((**0, 0, 33, 48**)))**anim\_h\_u.append**(**sprite\_h\_u.subsurface**((**33, 0, 33, 48**)))**anim\_h\_u.append**(**sprite\_h\_u.subsurface**((**66, 0, 33, 48**)))**anim\_h\_u.append**(**sprite\_h\_u.subsurface**(**99, 0, 29, 48**))**anim\_h\_d **= []**anim\_h\_d.append**(**sprite\_h\_d.subsurface**((**0, 0, 33, 48**)))**anim\_h\_d.append**(**sprite\_h\_d.subsurface**((**33, 0, 33, 48**)))**anim\_h\_d.append**(**sprite\_h\_d.subsurface**((**66, 0, 33, 48**)))**anim\_h\_d.append**(**sprite\_h\_d.subsurface**(**99, 0, 29, 48**))**speed\_of\_hero **=** 1  
x\_hero **=** 50  
y\_hero **=** 300  
hero\_flag **= True**timer **=** 180  
hero **=** Animation**(**anim\_h\_r, anim\_h\_u, anim\_h\_d, timer**)  
  
"""Задание переменных отвечающих за жизни и деньги"""**amount\_of\_health **=** 3  
amount\_of\_coins **=** 100  
  
#"""Создание анимированного КОЛХОЗНИКА"""  
#sprite\_k = image.load("krest.png").convert\_alpha()  
#anim\_k = []  
  
**"""Таймер"""**clock **=** time.Clock**()**dt **=** 0  
  
**"""Cмерть"""**die **=** Died**()  
  
"""Скорость отклика"""**key.set\_repeat**(**100, 1**)  
  
"""Запуск игры"""**flag **= True  
while** flag**:** track\_battle.play**(-**1**)  
  
 """Закраска игровых полей Город, Поле, Информационная строка"""** town.fill**((**100, 100, 100**))** field.fill**((**50, 70, 100**))** info\_string.fill**((**170, 170, 170**))  
  
 """Вывод на экран полей Город, Поле, Информационная строка"""** field.blit**(**bg\_grass, **(**START\_POINT, START\_POINT**))** info\_string.blit**(**bg\_pergament, **(**START\_POINT, START\_POINT**))** info\_string.blit**(**bg\_tavern, **(**X\_TAVERN, Y\_TAVERN**))** info\_string.blit**(**bg\_arrow\_static, **(**ARROW\_ST\_X, ARROW\_ST\_Y**))** info\_string.blit**(**gold, **(**620, 10**))** info\_string.blit**(**heart, **(**450, 12**))** info\_string.blit**(**arrow.render**(**str**(**counter\_hero**)**, 1, **(**0, 0, 35**))**, **(**330, 12**))** info\_string.blit**(**coins.render**(**str**(**amount\_of\_coins**)**, 1, **(**104, 142, 35**))**, **(**670, 15**))** info\_string.blit**(**health.render**(**str**(**amount\_of\_health**)**, 1, **(**86, 3, 25**))**, **(**500, 15**))** info\_string.blit**(**tavern.render**(u"Taverna"**, 1, **(**128, 0, 0**))**, **(**60, 5**))** info\_string.blit**(**tavern\_f.render**(u"(press T)"**, 1, **(**128, 0, 0**))**, **(**80, 30**))** town.blit**(**bg\_town, **(**START\_POINT, START\_POINT**))** town.blit**(**tower, **(**X\_TOWER, Y\_TOWER**))  
 if** intersect**(**60, x\_hero, 294, y\_hero, 30, 30**):** town.blit**(**press\_e.render**(u"E"**, 1, **(**0, 0, 35**))**, **(**X\_TOWER **+** 55, Y\_TOWER **+** 5**))** ######  
 **"""Обработка событий"""  
 for** i **in** event.get**():  
 if** i.type **==** QUIT**:** flag **= False  
 if** i.type **==** KEYDOWN**:  
 if** i.key **==** K\_e**:** key.set\_repeat**(**250, 1**)  
 if** intersect**(**60, x\_hero, 294, y\_hero, 30, 30**):  
 if** counter\_hero **<** counter\_tower**:** counter\_hero **=** 0  
 counter\_hero **+=** counter\_tower  
 **if** i.key **==** K\_LEFT **or** i.key **==** K\_a**:  
 if** x\_hero **>** START\_POINT**:** hero\_flag **= False** x\_hero **-=** speed\_of\_hero  
 hero.update\_r**(**dt**)** town.blit**(**hero.get\_sprite\_r**()**, **(**x\_hero, y\_hero**))  
 if** i.key **==** K\_RIGHT **or** i.key **==** K\_d**:  
 if** x\_hero **<** LENGTH\_SCREEN\_TOWN **-** 33**:** hero\_flag **= False** x\_hero **+=** speed\_of\_hero  
 hero.update\_r**(**dt**)** town.blit**(**hero.get\_sprite\_r**()**, **(**x\_hero, y\_hero**))  
 if** i.key **==** K\_UP **or** i.key **==** K\_w**:  
 if** y\_hero **>** START\_POINT**:** hero\_flag **= False** y\_hero **-=** speed\_of\_hero  
 hero.update\_u**(**dt**)** town.blit**(**hero.get\_sprite\_u**()**, **(**x\_hero, y\_hero**))  
 if** i.key **==** K\_DOWN **or** i.key **==** K\_s**:  
 if** y\_hero **<** WIDTH\_SCREEN\_TOWN **-** 48**:** hero\_flag **= False** y\_hero **+=** speed\_of\_hero  
 hero.update\_d**(**dt**)** town.blit**(**hero.get\_sprite\_d**()**, **(**x\_hero, y\_hero**))  
 if** i.key **==** K\_ESCAPE**:** track\_battle.stop**()** menu.start\_menu**(**window, bg\_win**)** key.set\_repeat**(**100, 1**)  
 if** i.key **==** K\_t**:** amount\_of\_health, amount\_of\_coins **=** tavern\_menu.start\_tavern**(**window, bg\_win, amount\_of\_coins,  
 amount\_of\_health**)** key.set\_repeat**(**100, 1**)  
 if** i.key **==** K\_SPACE**:** track\_hit.play**()  
 if** counter\_hero **>** 0**:  
 if not** arr3.push **and** arr2.push**:** arr3.x **=** x\_hero **+** 10  
 arr3.y **=** y\_hero **+** 60  
 arr3.push **= True** counter\_hero **-=** 1  
 **if not** arr2.push **and** arr1.push**:** arr2.x **=** x\_hero **+** 10  
 arr2.y **=** y\_hero **+** 60  
 arr2.push **= True** counter\_hero **-=** 1  
 **if not** arr1.push **and** arr.push**:** arr1.x **=** x\_hero **+** 10  
 arr1.y **=** y\_hero **+** 60  
 arr1.push **= True** counter\_hero **-=** 1  
 **if not** arr.push**:** arr.x **=** x\_hero **+** 10  
 arr.y **=** y\_hero **+** 60  
 arr.push **= True** counter\_hero **-=** 1  
  
 **if** arr.x **>** LENGTH\_WINDOW**:** arr.push **= False  
  
 if not** arr.push**:** arr.y **=** ARROW\_ST\_Y  
 arr.x **= -**100  
 **else:** arr.x **+=** 5  
  
 **if** arr1.x **>** LENGTH\_WINDOW**:** arr1.push **= False  
  
 if not** arr1.push**:** arr1.y **=** ARROW\_ST\_Y  
 arr1.x **= -**100  
 **else:** arr1.x **+=** 5  
  
 **if** arr2.x **>** LENGTH\_WINDOW**:** arr2.push **= False  
  
 if not** arr2.push**:** arr2.y **=** ARROW\_ST\_Y  
 arr2.x **= -**100  
 **else:** arr2.x **+=** 5  
  
 **if** arr3.x **>** LENGTH\_WINDOW**:** arr3.push **= False  
  
 if not** arr3.push**:** arr3.y **=** ARROW\_ST\_Y  
 arr3.x **= -**100  
 **else:** arr3.x **+=** 5  
  
 **if** hero\_flag**:** town.blit**(**hero.static**()**, **(**x\_hero, y\_hero**))** hero\_flag **= True** window.blit**(**town, **(**START\_POINT, WIDTH\_INFO**))** window.blit**(**field, **(**LENGTH\_SCREEN\_TOWN, WIDTH\_INFO**))** window.blit**(**info\_string, **(**START\_POINT, START\_POINT**))  
  
 for** g **in** range**(**len**(**zombs**)):** zombs**[**g**]**.check **= True** zombs**[**g**]**.update\_r**(**dt**)** window.blit**(**zombs**[**g**]**.get\_sprite\_r**()**, **(**zombs**[**g**]**.x\_zomb, zombs**[**g**]**.y\_zomb**))** zomb\_on\_the\_field **+=** 1  
  
 **for** j **in** range**(**len**(**zombs**)):  
  
 if** amount\_of\_health **<=** 3**:** speed **=** 0.3  
 speed\_of\_hero **=** 1  
 **if** 3 **<** amount\_of\_health **<=** 5**:** speed **=** 0.5  
 speed\_of\_hero **=** 1.2  
 **if** 5 **<** amount\_of\_health **<=** 10**:** speed **=** 0.7  
 speed\_of\_hero **=** 1.4  
 **if** amount\_of\_health **>** 10**:** speed **=** 1.2  
 speed\_of\_hero **=** 1.7  
  
 **if** zombs**[**j**]**.x\_zomb **<** 0**:** zombs**[**j**]**.check **= False** zomb\_on\_the\_field **-=** 1  
 amount\_of\_health **-=** 1  
  
 **if** intersect**(**zombs**[**j**]**.x\_zomb, arr1.x, zombs**[**j**]**.y\_zomb **+** 17, arr1.y, 24, 24**):** amount\_of\_coins **+=** 10  
 zombs**[**j**]**.check **= False** zomb\_on\_the\_field **-=** 1  
 arr1.x **=** 900  
 arr1.y **=** 0  
 **if** intersect**(**zombs**[**j**]**.x\_zomb, arr.x, zombs**[**j**]**.y\_zomb **+** 17, arr.y, 24, 24**):** amount\_of\_coins **+=** 10  
 zombs**[**j**]**.check **= False** zomb\_on\_the\_field **-=** 1  
 arr.x **=** 900  
 arr.y **=** 0  
 **if** intersect**(**zombs**[**j**]**.x\_zomb, arr2.x, zombs**[**j**]**.y\_zomb **+** 17, arr2.y, 24, 24**):** amount\_of\_coins **+=** 10  
 zombs**[**j**]**.check **= False** zomb\_on\_the\_field **-=** 1  
 arr2.x **=** 900  
 arr2.y **=** 0  
 **if** intersect**(**zombs**[**j**]**.x\_zomb, arr3.x, zombs**[**j**]**.y\_zomb **+** 17, arr3.y, 24, 24**):** amount\_of\_coins **+=** 10  
 zombs**[**j**]**.check **= False** zomb\_on\_the\_field **-=** 1  
 arr3.x **=** 900  
 arr3.y **=** 0  
  
 **if not** zombs**[**j**]**.check**:** zombs**[**j**]**.x\_zomb **=** x\_zomb  
 zombs**[**j**]**.y\_zomb **=** randrange**(**60, 600, 15**)  
 else:** zombs**[**j**]**.x\_zomb **-=** speed  
  
 **if** amount\_of\_health **<=** 0**:** track\_battle.stop**()** amount\_of\_health **=** 3  
 amount\_of\_coins **=** 100  
 counter\_hero **=** 0  
 **for** i **in** range**(**10**):** zombs**[**i**]**.x\_zomb **=** 860  
 zombs**[**i**]**.y\_zomb **=** 60 **+** i **\*** 60  
 die.start\_deth**(**window**)** arr.render**(**window**)** arr1.render**(**window**)** arr2.render**(**window**)** arr3.render**(**window**)** display.flip**()** dt **=** clock.tick**(**120**)**

Файл menu.py

**from** pygame **import \*  
from** Options **import \*  
import** sys  
  
START\_POINT **=** 0  
  
  
**class Menu(**object**):  
 def \_\_init\_\_(**self, positions**):** self.positions **=** positions  
  
 **def render(**self, window, font, num\_option**):  
 for** i **in** self.positions**:  
 if** num\_option **==** i**[**5**]:** window.blit**(**font.render**(**i**[**2**]**, 1, i**[**4**])**, **(**i**[**0**]**, i**[**1**]))  
 else:** window.blit**(**font.render**(**i**[**2**]**, 1, i**[**3**])**, **(**i**[**0**]**, i**[**1**]))  
  
 def start\_menu(**self, window, bg\_win**):  
 """ЗАпуск меню"""** init**()  
 """Звуки"""** mixer.pre\_init**(**44100, **-**16, 1, 512**)** mixer.init**()** music\_menu **= "menu.ogg"** track\_menu **=** mixer.Sound**(**music\_menu**)** track\_menu.play**(-**1**)** flag **= True** font\_menu **=** font.SysFont**("Algerian,"**, 64**)** option **=** 0  
  
 key.set\_repeat**(**1000, 1**)** mouse.set\_visible**(True)** bg\_menu\_1 **=** image.load**("bg\_menu\_1.png")** bg\_menu\_2 **=** image.load**("bg\_menu\_2.png")** bg\_menu\_3 **=** image.load**("bg\_menu\_3.png")** bg\_box1 **=** image.load**("bg\_box1.png")** bg\_box2 **=** image.load**("bg\_box1.png")** bg\_box3 **=** image.load**("bg\_box1.png")  
  
 while** flag**:** track\_menu.play**(-**1**)** window.blit**(**bg\_win, **(**START\_POINT, START\_POINT**))** window.blit**(**bg\_menu\_1, **(**630, 10**))** window.blit**(**bg\_menu\_2, **(-**70, 300**))** window.blit**(**bg\_menu\_3, **(**510, 380**))** window.blit**(**bg\_box1, **(**215, 50**))** window.blit**(**bg\_box2, **(**215, 240**))** window.blit**(**bg\_box3, **(**215, 430**))** map **=** mouse.get\_pos**()  
 for** i **in** self.positions**:  
 if (**map**[**0**] >** i**[**0**] -** 100 **and** map**[**0**] <** i**[**0**] +** 250 **and** map**[**1**] >** i**[**1**] -** 50 **and** map**[**1**] <** i**[**1**] +** 90**):** option **=** i**[**5**]** self.render**(**window, font\_menu, option**)  
  
 for** i **in** event.get**():  
 if** i.type **==** QUIT**:** sys.exit**()  
 if** i.type **==** KEYDOWN**:  
 if** i.key **==** K\_ESCAPE**:** sys.exit**()  
 if** i.key **==** K\_UP **or** i.key **==** K\_w**:  
 if** option **>** 0**:** option **-=** 1  
 **if** i.key **==** K\_DOWN **or** i.key **==** K\_s**:  
 if** option **<** len**(**self.positions**) -** 1**:** option **+=** 1  
 **if** i.key **==** K\_RETURN**:  
 if** option **==** 0**:** track\_menu.stop**()** flag **= False  
 if** option **==** 1**:** num **=** Options**()** num.start\_options**(**window, bg\_win**)  
 if** option **==** 2**:** track\_menu.stop**()** sys.exit**()  
 if** i.type **==** MOUSEBUTTONDOWN **and** i.button **==** 1**:** track\_menu.stop**()  
 if** option **==** 0**:** flag **= False  
 elif** option **==** 1**:** num **=** Options**()** num.start\_options**(**window, bg\_win**)  
 elif** option **==** 2**:** sys.exit**()** display.flip**()**

Файл death.py

**from** pygame **import \*  
import** sys  
  
bg\_died **=** image.load**("bg\_died.png")**backgrownd **=** image.load**("Back.png")  
  
  
class Died(**object**):  
 def \_\_init\_\_(**self**):** self.back **=** backgrownd  
 self.died **=** bg\_died  
  
 **def start\_deth(**self, window**):** init**()** mixer.pre\_init**(**44100, **-**16, 1, 512**)** mixer.init**()** music\_death **= "death.ogg"** mixer.music.set\_volume**(**0.5**)** track\_death **=** mixer.Sound**(**music\_death**)** flag **= True  
 while** flag**:** track\_death.play**(-**1**)** window.blit**(**self.back, **(**0, 0**))** window.blit**(**self.died, **(**300, **-**40**))  
 for** i **in** event.get**():  
 if** i.type **==** QUIT**:** sys.exit**()  
 if** i.type **==** KEYDOWN**:  
 if** i.key **==** K\_ESCAPE**:** track\_death.stop**()  
 return** 0  
 display.flip**()**

Файл tavern.py

**from** pygame **import \*  
from** Options **import \*  
import** sys  
  
START\_POINT **=** 0  
COST **=** 100  
  
  
**class Tavern(**object**):  
 def \_\_init\_\_(**self, positions**):** self.positions **=** positions  
  
 **def render(**self, window, font, num\_option**):  
 for** i **in** self.positions**:  
 if** num\_option **==** i**[**5**]:** window.blit**(**font.render**(**i**[**2**]**, 1, i**[**4**])**, **(**i**[**0**]**, i**[**1**]))  
 else:** window.blit**(**font.render**(**i**[**2**]**, 1, i**[**3**])**, **(**i**[**0**]**, i**[**1**]))  
  
 def start\_tavern(**self, window, bg\_win, amount\_of\_coins, amount\_of\_health**):  
 """ЗАпуск меню"""** font\_menu **=** font.SysFont**("Algerian,"**, 64**)** option **=** 0  
  
 font.init**()** my\_health **=** font.SysFont**("Algerian"**, 48**)** my\_coins **=** font.SysFont**("Algerian"**, 48**)** cost **=** font.SysFont**("Algerian"**, 36**)** key.set\_repeat**(**1000, 1**)** mouse.set\_visible**(True)** bg\_box1 **=** image.load**("bg\_box1.png")** bg\_box2 **=** image.load**("bg\_box1.png")** gold **=** image.load**("gold.png")** gold\_c **=** image.load**("gold.png")** heart **=** image.load**("heart.png")** bg\_decor1 **=** image.load**("bg\_tavern\_decor1.png")** bg\_decor2 **=** image.load**("bg\_tavern\_decor2.png")  
  
 while True:** window.blit**(**bg\_win, **(**START\_POINT, START\_POINT**))** window.blit**(**bg\_box1, **(**20, 100**))** window.blit**(**bg\_box2, **(**20, 410**))** map **=** mouse.get\_pos**()  
 for** i **in** self.positions**:  
 if (**map**[**0**] >** i**[**0**] -** 100 **and** map**[**0**] <** i**[**0**] +** 250 **and** map**[**1**] >** i**[**1**] -** 50 **and** map**[**1**] <** i**[**1**] +** 90**):** option **=** i**[**5**]** self.render**(**window, font\_menu, option**)  
  
 for** i **in** event.get**():  
 if** i.type **==** QUIT**:** sys.exit**()  
 if** i.type **==** KEYDOWN**:  
 if** i.key **==** K\_ESCAPE**:  
 return** amount\_of\_health, amount\_of\_coins  
 **if** i.key **==** K\_UP **or** i.key **==** K\_w**:  
 if** option **>** 0**:** option **-=** 1  
 **if** i.key **==** K\_DOWN **or** i.key **==** K\_s**:  
 if** option **<** len**(**self.positions**) -** 1**:** option **+=** 1  
 **if** i.key **==** K\_RETURN**:  
 if** option **==** 1**:  
 return** amount\_of\_health, amount\_of\_coins  
 **if** option **==** 0**:  
 if** amount\_of\_coins **>=** COST**:** amount\_of\_health **+=** 1  
 amount\_of\_coins **-=** COST  
 **if** i.type **==** MOUSEBUTTONDOWN **and** i.button **==** 1**:  
 if** option **==** 1**:  
 return** amount\_of\_health, amount\_of\_coins  
 **elif** option **==** 0**:  
 if** amount\_of\_coins **>=** COST**:** amount\_of\_health **+=** 1  
 amount\_of\_coins **-=** COST  
  
 window.blit**(**bg\_decor1, **(**220, 0**))** window.blit**(**bg\_decor2, **(**400, 260**))** window.blit**(**gold, **(**420, 120**))** window.blit**(**heart, **(**420, 200**))** window.blit**(**gold\_c, **(**90, 260**))** window.blit**(**my\_coins.render**(**str**(**amount\_of\_coins**)**, 1, **(**104, 142, 35**))**, **(**470, 120**))** window.blit**(**my\_health.render**(**str**(**amount\_of\_health**)**, 1, **(**86, 3, 25**))**, **(**470, 200**))** window.blit**(**cost.render**(u"Cost: 100"**, 1, **(**104, 142, 35**))**, **(**150, 260**))** display.flip**()**

Файл Options.py

**from** pygame **import \*  
import** sys  
  
  
**class Options(**object**):  
 def \_\_init\_\_(**self**):** print**("")  
  
 def start\_options(**self, window, bg\_win**):** START\_POINT **=** 0  
  
 bg\_op **=** image.load**("bg\_op.png")** font.init**()** headline **=** font.SysFont**("Algerian"**, 64**)** text1 **=** font.SysFont**("MS PGothic"**, 32**)** text2 **=** font.SysFont**("MS PGothic"**, 32**)** text3 **=** font.SysFont**("MS PGothic"**, 32**)** text4 **=** font.SysFont**("MS PGothic"**, 32**)** text5 **=** font.SysFont**("MS PGothic"**, 32**)** text6 **=** font.SysFont**("MS PGothic"**, 32**)** text7 **=** font.SysFont**("MS PGothic"**, 32**)** flag **= True  
 while** flag**:  
  
 for** i **in** event.get**():  
 if** i.type **==** QUIT**:** sys.exit**()  
 if** i.type **==** KEYDOWN**:  
 if** i.key **==** K\_ESCAPE**:** flag **= False** window.blit**(**bg\_win, **(**START\_POINT, START\_POINT**))** window.blit**(**bg\_op, **(**10, 300**))** window.blit**(**headline.render**(u"Manual"**, 1, **(**104, 142, 35**))**, **(**300, 15**))** window.blit**(**text1.render**(u"You play as a knight who must defend the Tower."**, 1, **(**104, 142, 35**))**, **(**180, 120**))** window.blit**(**text2.render**(u"Initially, the tower has 3hp, but you can buy them"**, 1, **(**104, 142, 35**))**,  
 **(**180, 170**))** window.blit**(**text3.render**(u"in a tavern for 100 coins. Knights from another"**, 1, **(**104, 142, 35**))**, **(**190, 220**))** window.blit**(**text4.render**(u"order will attack the tower. Your task is to destroy"**, 1, **(**104, 142, 35**))**,  
 **(**180, 270**))** window.blit**(**text5.render**(u"the knights and pass into the tower of the peasants."**, 1, **(**104, 142, 35**))**,  
 **(**180, 320**))** window.blit**(**text6.render**(u"For each knights knocked down you "**, 1, **(**104, 142, 35**))**,  
 **(**350, 370**))** window.blit**(**text7.render**(u" will be given 10 coins."**, 1, **(**104, 142, 35**))**,  
 **(**380, 420**))** display.flip**()**

Файл class\_list.py

**from** pygame **import \*  
  
  
class Object(**object**):  
 def \_\_init\_\_(**self, obj\_x, obj\_y, filename**):** self.x **=** obj\_x  
 self.y **=** obj\_y  
 self.bitmpap **=** image.load**(**filename**)** self.bitmpap.set\_colorkey**((**0, 0, 0**))** self.push **= False  
  
 def render(**self, screen**):** screen.blit**(**self.bitmpap, **(**self.x, self.y**))**

Файл iintersect.py’

**def intersect(**s1\_x, s2\_x, s1\_y, s2\_y, width\_obj1, length\_obj1**):  
 if ((**s1\_x **>** s2\_x **-** length\_obj1**) and (**s1\_x **<** s2\_x **+** length\_obj1**)  
 and (**s1\_y **>** s2\_y **-** width\_obj1**) and (**s1\_y **<** s2\_y **+** width\_obj1**)):  
 return True  
 else:  
 return False**