

The two run-time binding methods added to the Polymorphism program are a BMI calculator and a “Happiness Test”, an advanced tool to measure the user’s happiness.

We will begin testing different inputs for the BMI calculator. To start the calculator, the user must input 4. Anything else will exit the program



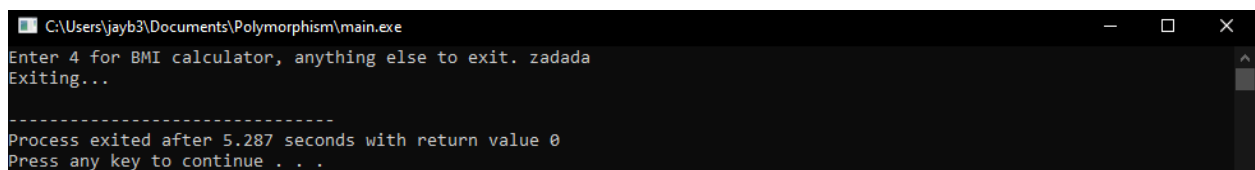
```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
```

Once we input 4, the program will begin.



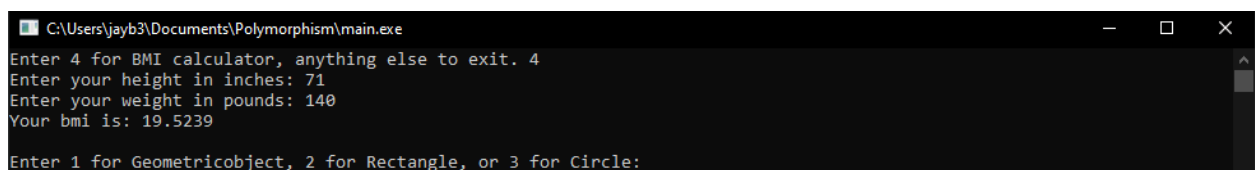
```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches:
```

If the user inputs anything else it will exit as stated



```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. zadada
Exiting...
-----
Process exited after 5.287 seconds with return value 0
Press any key to continue . . .
```

The program will then ask for a height in inches, and a weight in pounds. Each are a different input



```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 71
Enter your weight in pounds: 140
Your bmi is: 19.5239
Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle:
```

After both inputs are collected the BMI will be calculated and printed to the screen. The BMI uses the formula $\text{Weight} / \text{Height} / \text{Height} * 703$.

Various input tests:

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 13295701795
Enter your weight in pounds: 1095710957
Your bmi is: 4.35741e-009

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle:
```

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 151
Enter your weight in pounds: 19518
Your bmi is: 601.779

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle:
```

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 1048
Enter your weight in pounds: 1038
Your bmi is: 0.664401

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle:
```

We also have our Geometric object, rectangle and circle. We learned about this in class already so I will keep this part brief.

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 1048
Enter your weight in pounds: 1038
Your bmi is: 0.664401

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: 1
Just a geometric object
```

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 1048
Enter your weight in pounds: 1038
Your bmi is: 0.664401

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: 2
I'm a rectangle
```

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 1048
Enter your weight in pounds: 1038
Your bmi is: 0.664401

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: 3
I'm a circle
```

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 1048
Enter your weight in pounds: 1038
Your bmi is: 0.664401

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: adada
Enter 1-3 only.
Press any key to continue . . .
```

Next we have the “Happiness Test”. Like the Geometric run-time binding method, it starts right after the last method. The user must input Y to begin the test. N will exit the program.

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 1048
Enter your weight in pounds: 1038
Your bmi is: 0.664401

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: 3
I'm a circle

This is a test to measure your level of happiness according to your responses to certain questions.
Would you like to take the test? Y/N
```

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 1048
Enter your weight in pounds: 1038
Your bmi is: 0.664401

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: 3
I'm a circle

This is a test to measure your level of happiness according to your responses to certain questions.
Would you like to take the test? Y/N N
Exiting...

-----
Process exited after 191.6 seconds with return value 0
Press any key to continue . . .
```

The test is simple for the user. They must enter Y/N in response to 3 questions. Specific responses to the questions give the user a “point” towards the integer variable “happynum” by incrementing it by 1.

The program also accepts y/n as well for any Y/N question.

```
C:\Users\jayb3\Desktop\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 1048
Enter your weight in pounds: 1038
Your bmi is: 0.664401

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: 3
I'm a circle

This is a test to measure your level of happiness according to your responses to certain questions.
Would you like to take the test? Y/N y
Question #1: Have you slept for at least 7-8 hours previously? Y/N
```

If the user chooses responses that denote happiness for $\frac{1}{3}$ of the questions, the program will print the following:

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 40
Enter your weight in pounds: 100
Your bmi is: 43.9375

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: 1
Just a geometric object

This is a test to measure your level of happiness according to your responses to certain questions.
Would you like to take the test? Y/N Y
Question #1: Have you slept for at least 7-8 hours previously? Y/N
Y
Did you eat a good breakfast?
N
Is your room a mess?
Y
This is the end of the test.
You are completely unhappy. Try doing something you enjoy.
Press any key to continue . . .
```

If the user chooses responses that denote happiness for $\frac{2}{3}$ of the questions, the program will print the following:

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 40
Enter your weight in pounds: 100
Your bmi is: 43.9375

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: 3
I'm a circle

This is a test to measure your level of happiness according to your responses to certain questions.
Would you like to take the test? Y/N Y
Question #1: Have you slept for at least 7-8 hours previously? Y/N
Y
Did you eat a good breakfast?
N
Is your room a mess?
N
This is the end of the test.
You are moderately happy. Not bad.
Press any key to continue . . .
```

If the user chooses responses that denote happiness for 3/3 of the questions, the program will print the following:

```
C:\Users\jayb3\Documents\Polymorphism\main.exe
Enter 4 for BMI calculator, anything else to exit. 4
Enter your height in inches: 40
Enter your weight in pounds: 100
Your bmi is: 43.9375

Enter 1 for Geometricobject, 2 for Rectangle, or 3 for Circle: 3
I'm a circle

This is a test to measure your level of happiness according to your responses to certain questions.
Would you like to take the test? Y/N Y
Question #1: Have you slept for at least 7-8 hours previously? Y/N
Y
Did you eat a good breakfast?
Y
Is your room a mess?
N
This is the end of the test.
You are extremely happy. Great!
Press any key to continue . . .
```

That was a synopsis of the program. We achieved our goal of adding another 2 adding another two virtual run-time binding methods:

```
ptr = new bmicircle;
ptr -> bmi(); //run-time binding
} else {
```

```
ptr -> happy(); //run-time binding
}
```

These methods both accept input from the user and make computations.