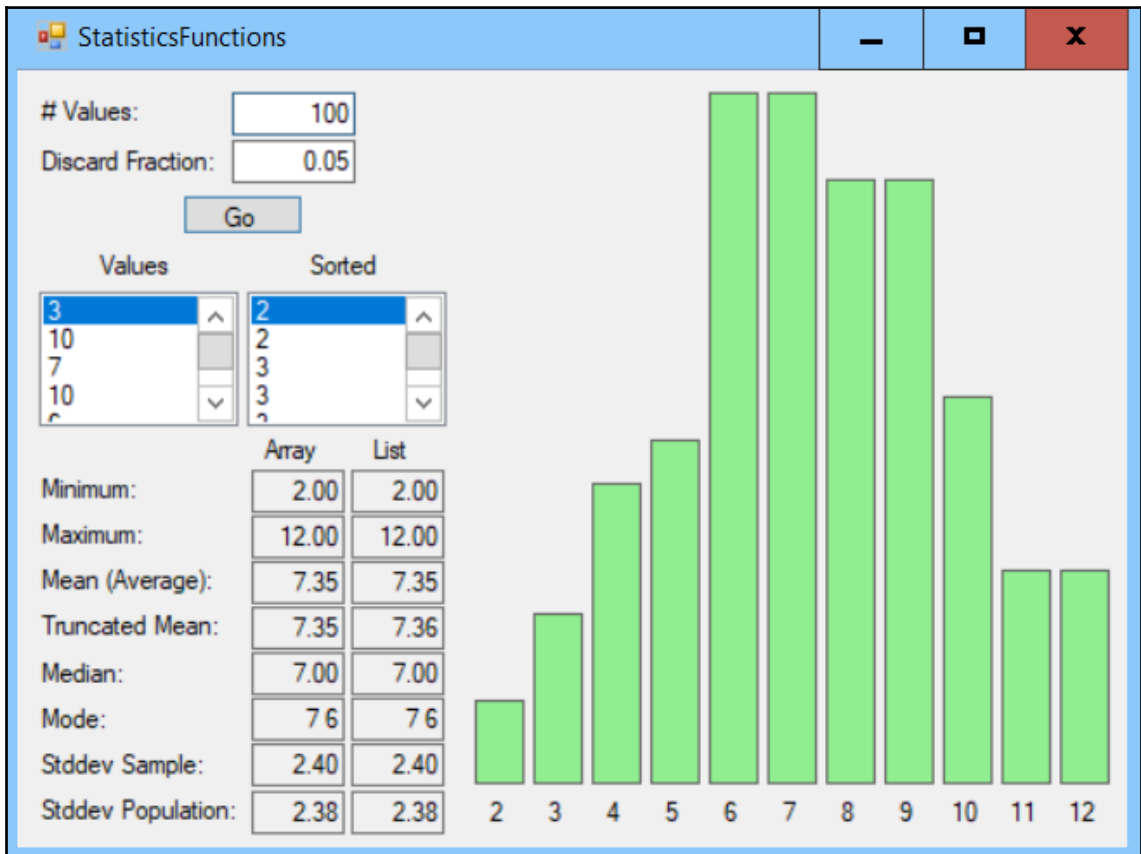
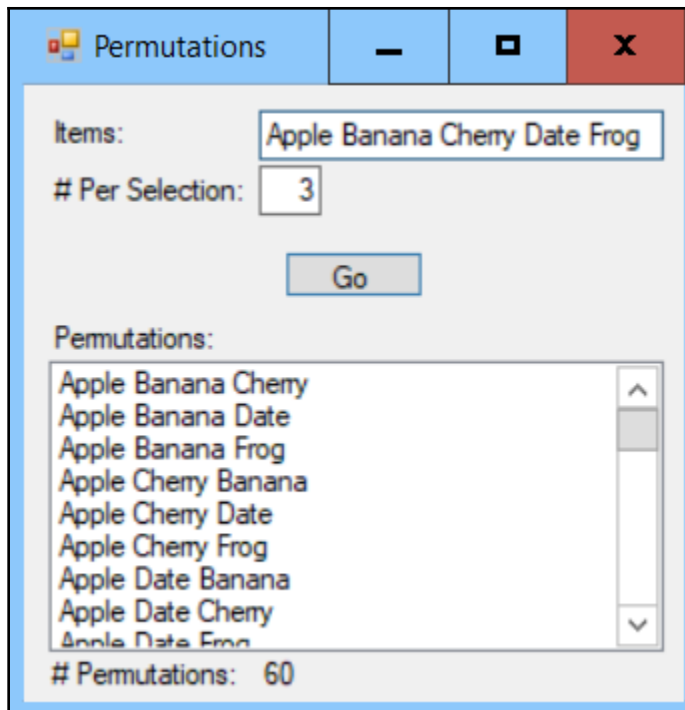
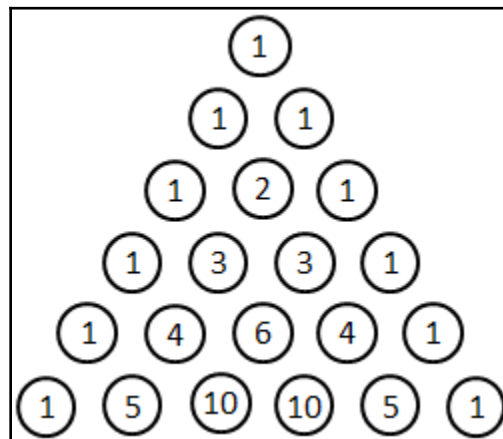
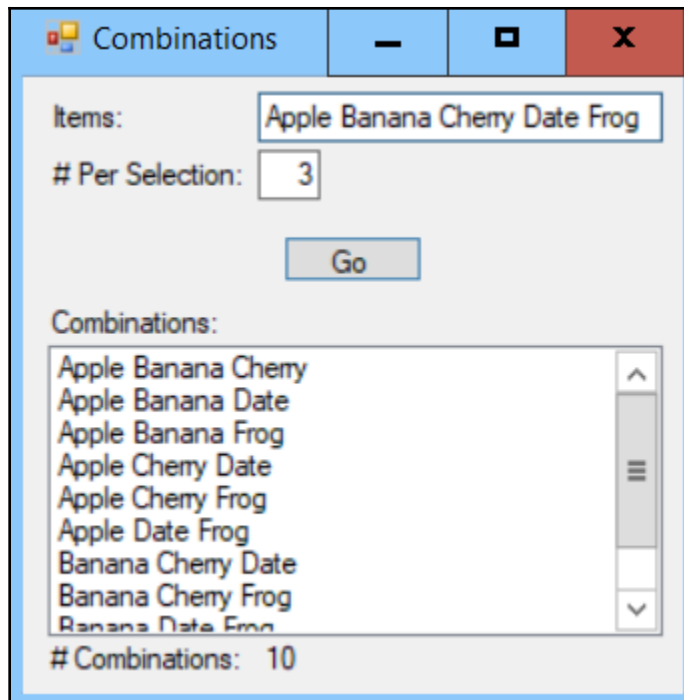
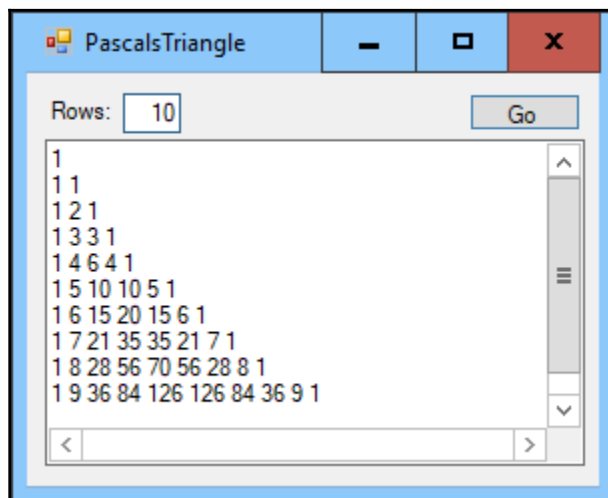
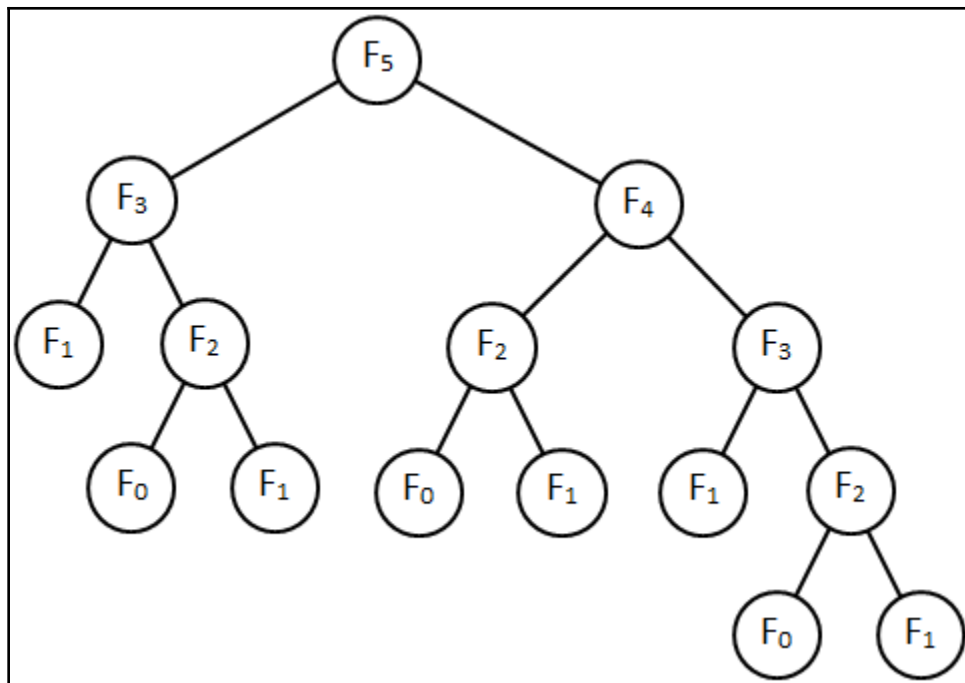


Chapter 1: Mathematics









SumsOfMultiples

Max:

Method 1:	<input type="text" value="2333333416666668"/>	<input type="text" value="2.0193"/>
Method 2:	<input type="text" value="2333333416666668"/>	<input type="text" value="0.2382"/>
Method 3:	<input type="text" value="2333333416666668"/>	<input type="text" value="0.2720"/>
Method 4:	<input type="text" value="2333333416666668"/>	<input type="text" value="0.0000"/>

PrimesTable

Max:

	Biggest Prime	Time (sec)
IsPrime:	<input type="text" value="9999991"/>	<input type="text" value="8.4516"/>
Eratosthenes:	<input type="text" value="9999991"/>	<input type="text" value="0.3327"/>
Euler:	<input type="text" value="9999991"/>	<input type="text" value="0.1124"/>

Primes:

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47
 53 59 61 67 71 73 79 83 89 97 101 103
 107 109 113 127 131 137 139 149 151 157
 163 167 173 179 181 191 193 197 199 211
 223 227 229 233 239 241 251 257 263 269
 271 277 281 283 293 307 311 313 317 331
 337 347 349 353 359 367 373 379 383 389
 397 401 409 419 421 431 433 439 443 449
 457 461 463 467 479 487 491 499 503 509

PrimeFactors		-	□	×
Number:	<input type="text" value="12345678901234"/>	<input type="button" value="Go"/>		
Table Time:	<input type="text" value="1.4511"/>			
Method 1:	<input type="text" value="2 7 73 12079920647"/>	<input type="text" value="0.0014"/>		
Method 2:	<input type="text" value="2 7 73 12079920647"/>	<input type="text" value="0.0009"/>		

ProperDivisors		-	□	×
Number:	<input type="text" value="123456780"/>	<input type="button" value="Go"/>		
Method 1:	<input type="text" value="1 2 3 4 5 6 9 10 12 15 18 20 :"/>	<input type="text" value="0.5355"/>		
Method 2:	<input type="text" value="1 2 3 4 5 6 9 10 12 15 18 20 :"/>	<input type="text" value="0.0007"/>		
# Factors:	71			

Chapter 2: Geometry

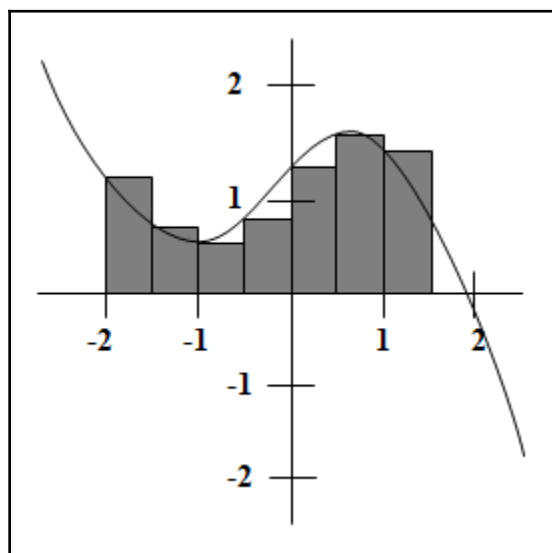
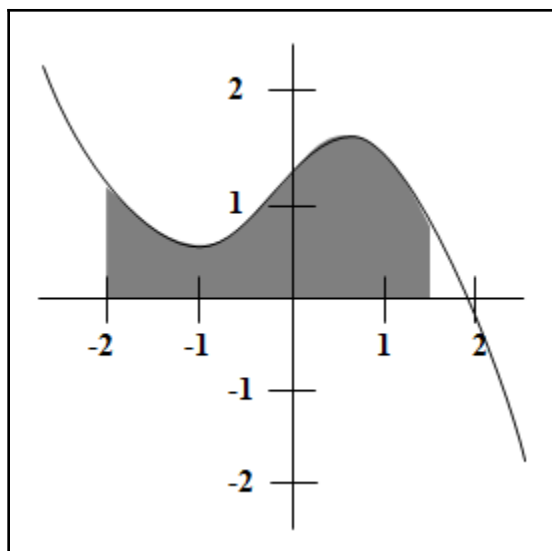
The screenshot shows a software window titled "GaussianElimination" with a blue title bar and standard window controls. The main area is divided into several sections:

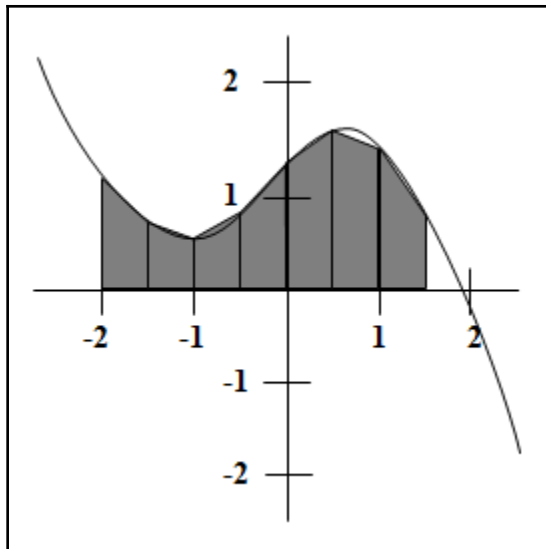
- Input Matrix:** A 5x5 grid of numbers:

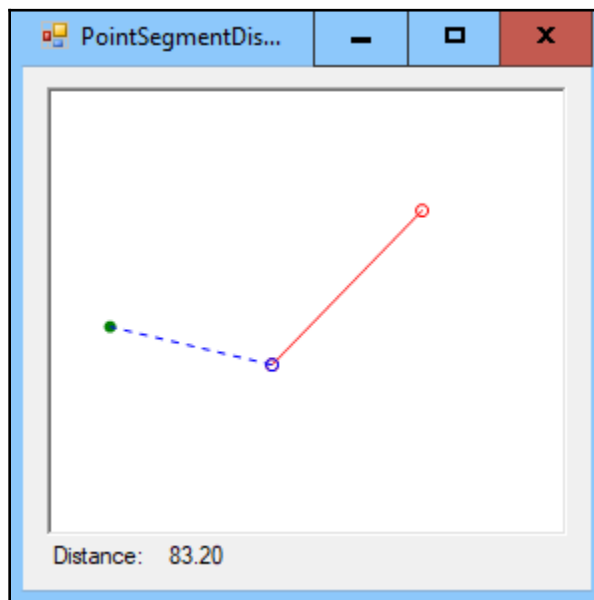
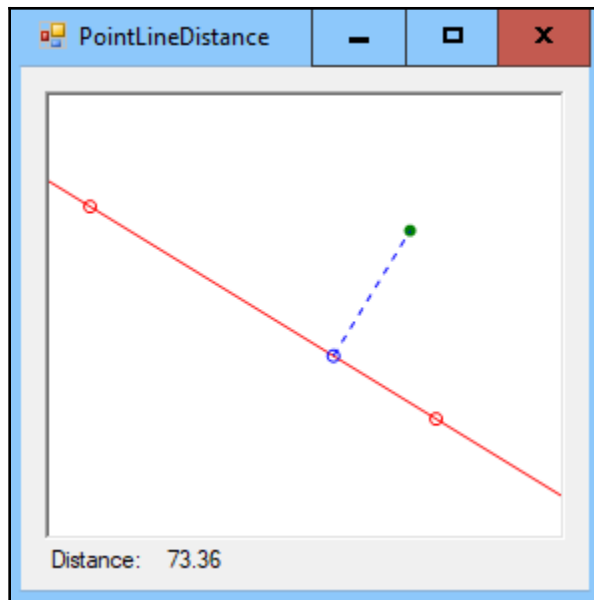
```
1  4  1  2  1
32 16  8  4  2
12 81  27  9  3
24 56  64 16  4
25 25 125 25  5
```
- Variables:** A list of variables: x0, x1, x2, x3, and ...
- Constants:** A list of constants: 17, -1, 28, 0, and 60.
- Solve Button:** A button labeled "Solve".
- Output Results:** A text area containing the following text:

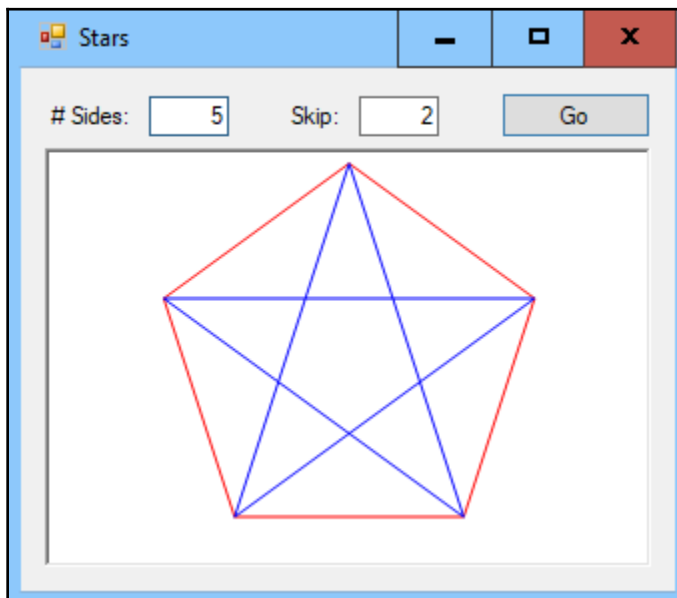
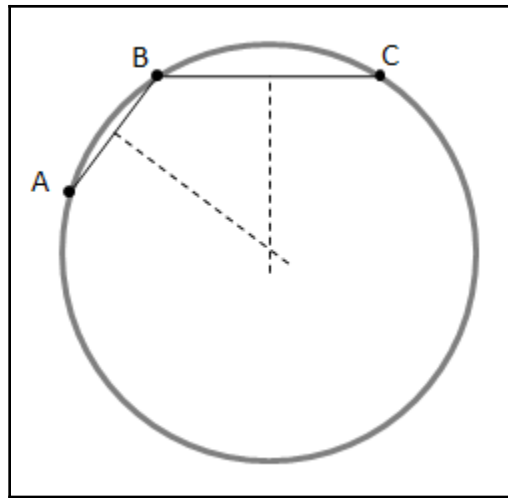
```
Values
x0 = -2.54640718562879
x1 = -0.0774700598802432
x2 = 7.00199600798425
x3 = -54.2616017964086
x4 = 121.377495009983

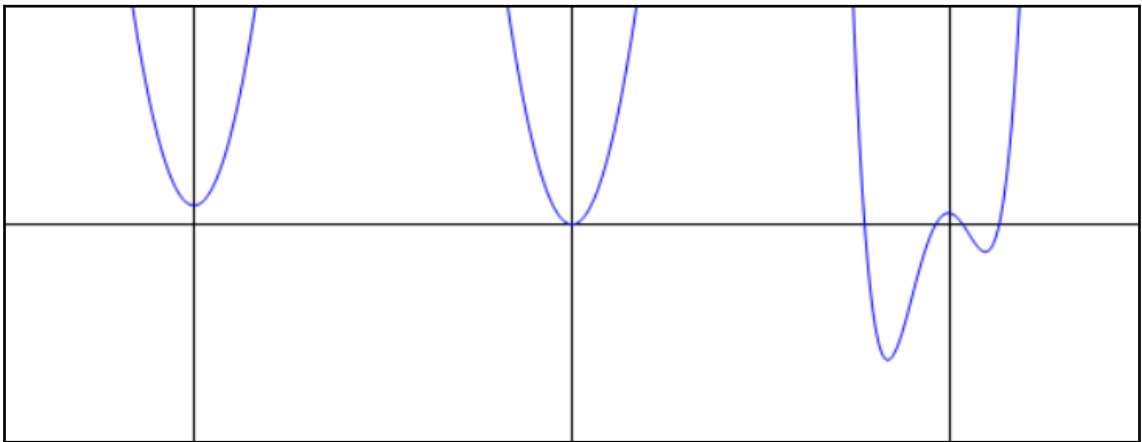
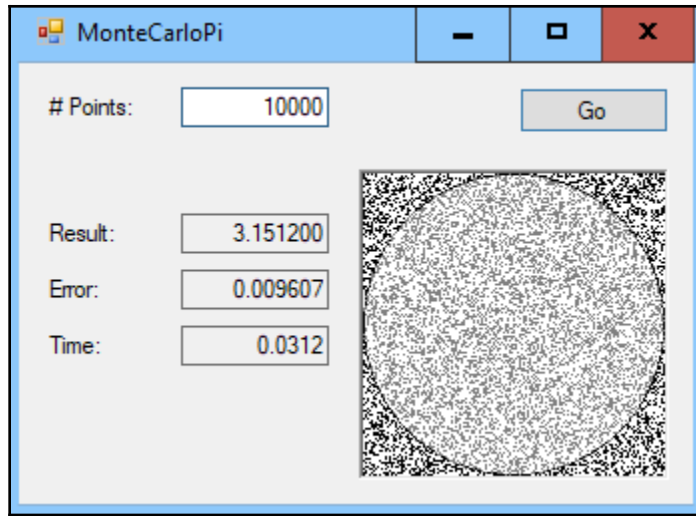
Check:
17
-1.0000000000000026
28.000000000000003
7.38964445190504E-13
60.000000000000042
```

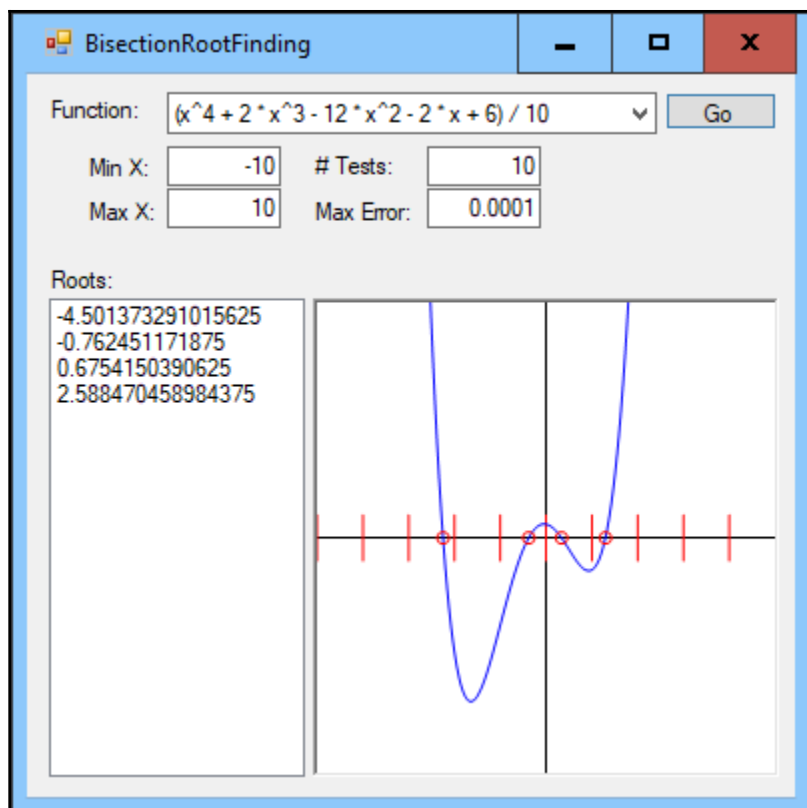


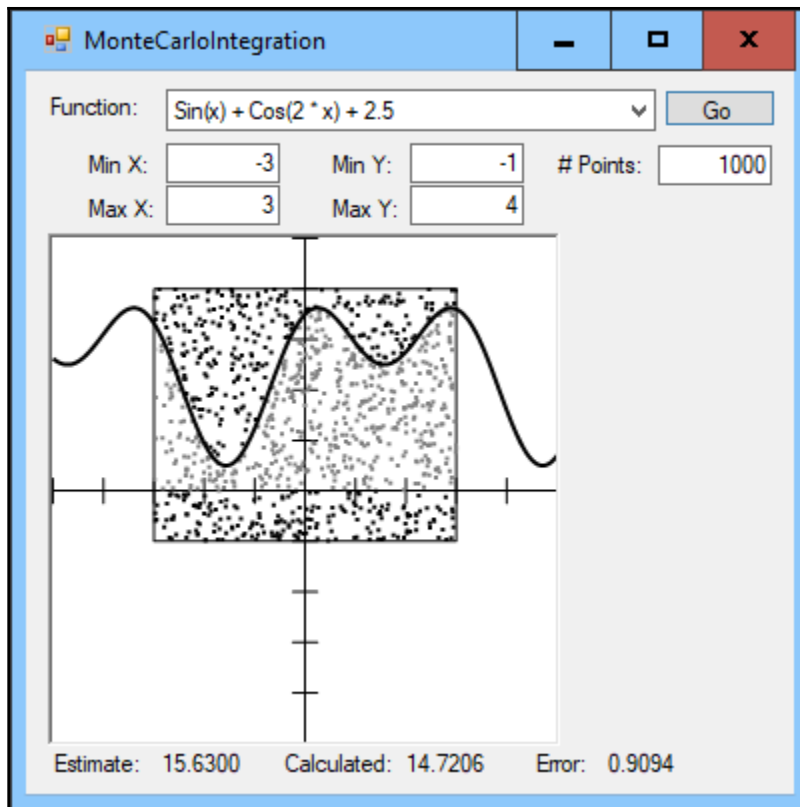


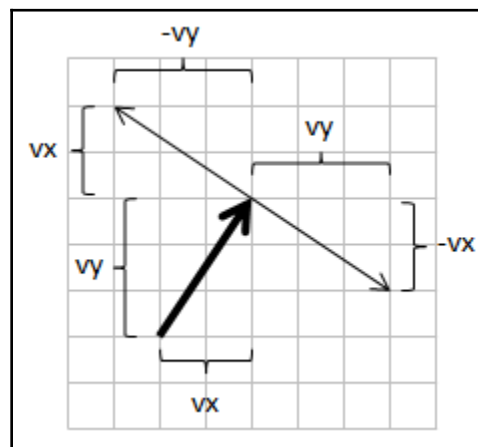
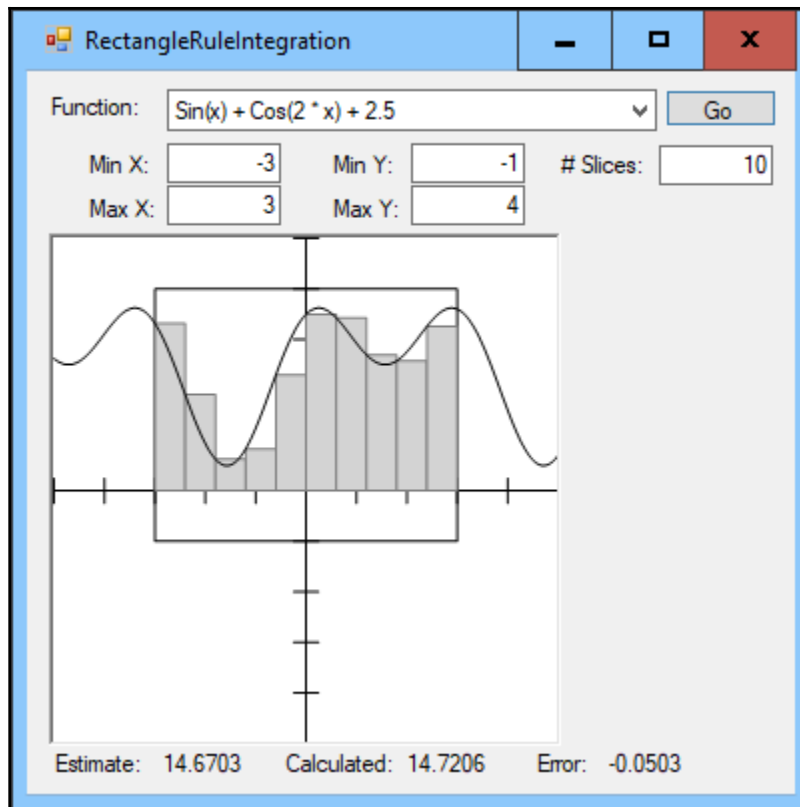


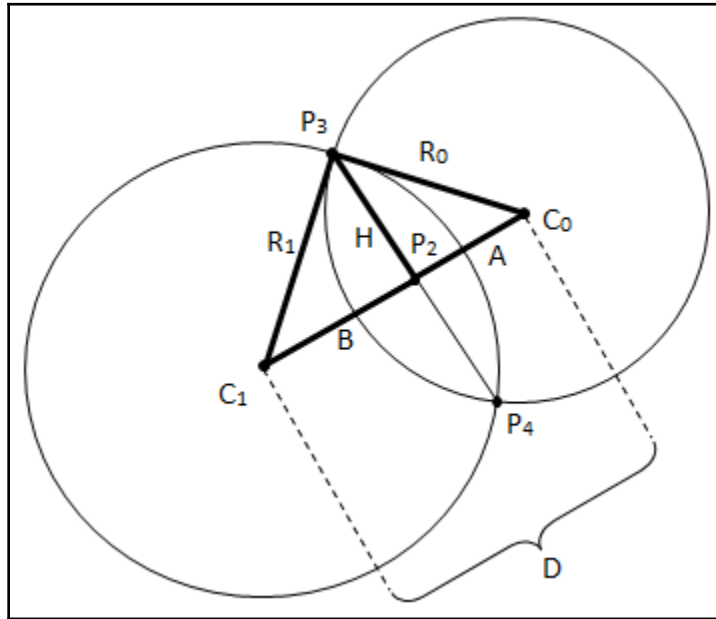
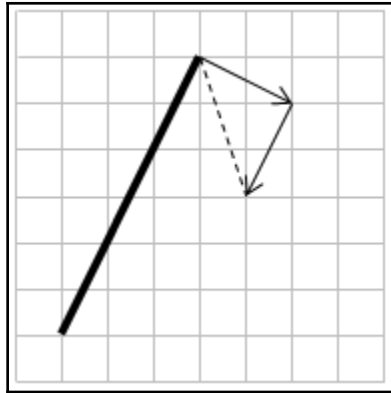


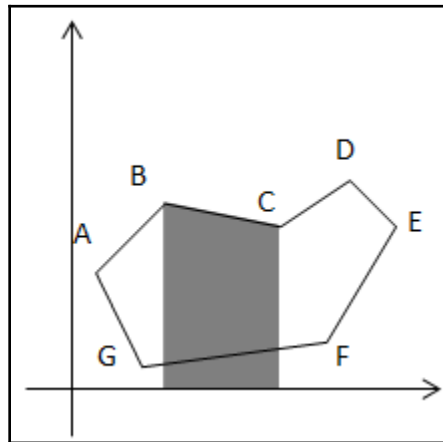
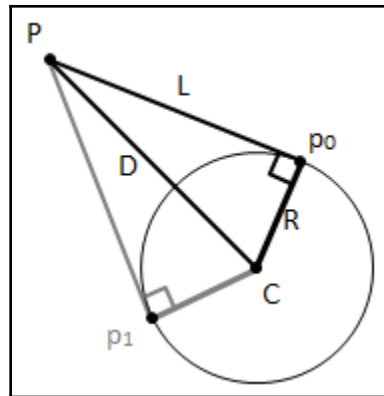












Chapter 3: Dates and Times

The screenshot shows the TimeZoneChart application window. At the top, the title bar reads "TimeZoneChart" with standard window controls. Below the title bar, the "Date:" field is set to "Sunday, March 8, 2020". Two dropdown menus are visible: the first is set to "(UTC-05:00) Eastern Time (US & Canada)" and the second is set to "(UTC-10:00) Hawaii". The main content area is a table with two columns: "Eastern Standard Time" and "Hawaiian Standard Time". The table lists times from 12:00 AM to 8:00 AM in the Eastern column and corresponding times in the Hawaiian column. The Hawaiian times are labeled as "(yesterday)", indicating a DST jump. For example, 12:00 AM Eastern corresponds to 7:00 PM Hawaiian (yesterday), and 2:00 AM Eastern is marked as "[INVALID]".

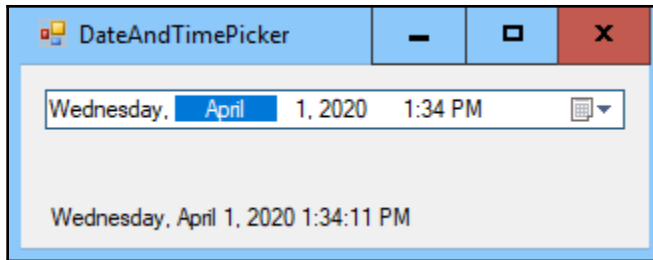
Eastern Standard Time	Hawaiian Standard Time
12:00 AM	7:00 PM (yesterday)
1:00 AM	8:00 PM (yesterday)
2:00 AM [INVALID]	
3:00 AM	9:00 PM (yesterday)
4:00 AM	10:00 PM (yesterday)
5:00 AM	11:00 PM (yesterday)
6:00 AM	12:00 AM
7:00 AM	1:00 AM
8:00 AM	2:00 AM

The screenshot shows the TimeZoneClocks application window. The title bar reads "TimeZoneClocks". The main content area displays five city names: New York, Paris, London, Tokyo, and Sydney. Below each city name is its current local time. All times are shown as of 7:24:17 PM on the same day.

City	Time
New York	7:24:17 PM
Paris	1:24:17 AM
London	12:24:17 AM
Tokyo	8:24:17 AM
Sydney	9:24:17 AM

The screenshot shows the LocalTimeZoneClocks application window. The title bar reads "LocalTimeZoneClocks". The main content area displays five city names: New York, Paris, London, Tokyo, and Sydney. Below each city name is its current local time. All times are shown as of 7:24:17 PM on the same day.

City	Time
New York	7:24:17 PM
Paris	01:24:17
London	00:24:17
Tokyo	08:24:17
Sydney	9:24:17 AM



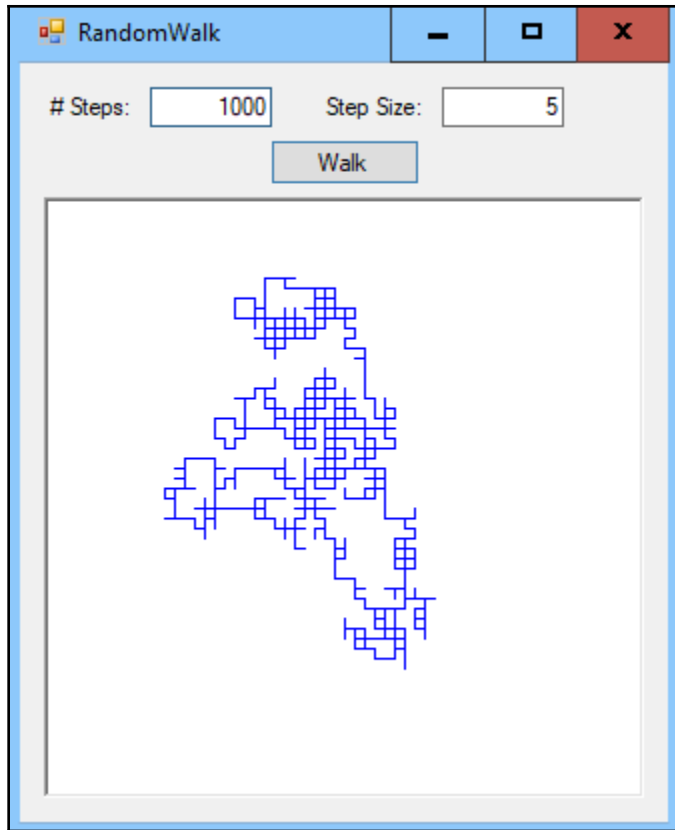
Chapter 4: Randomization

The screenshot shows a window titled "PasswordMaker" with standard Windows window controls (minimize, maximize, close). The window contains a "Characters" section with a table of options:

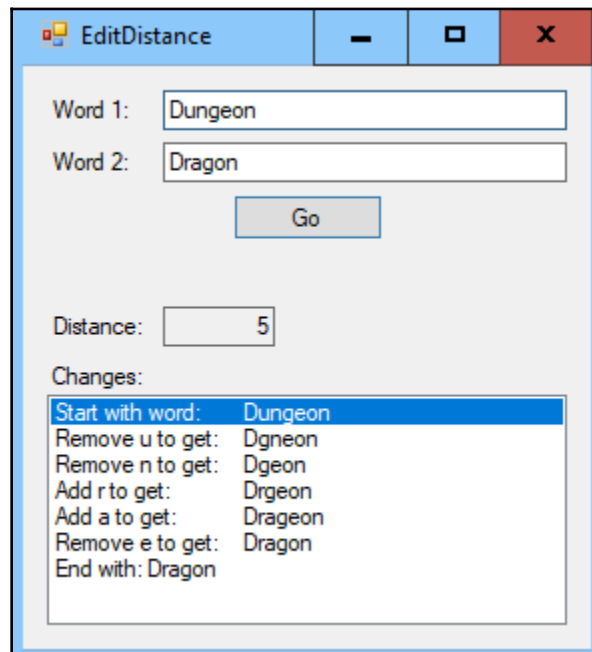
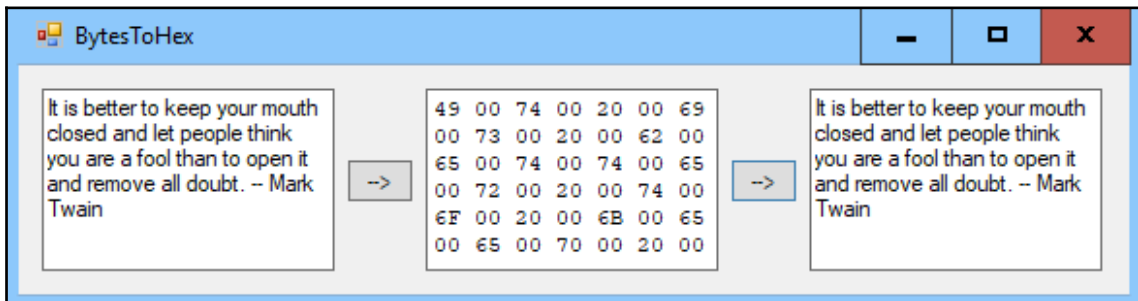
	Allow	Require
Lowercase (abc)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Uppercase (ABC)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Numbers (123)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Special (\$%#)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>

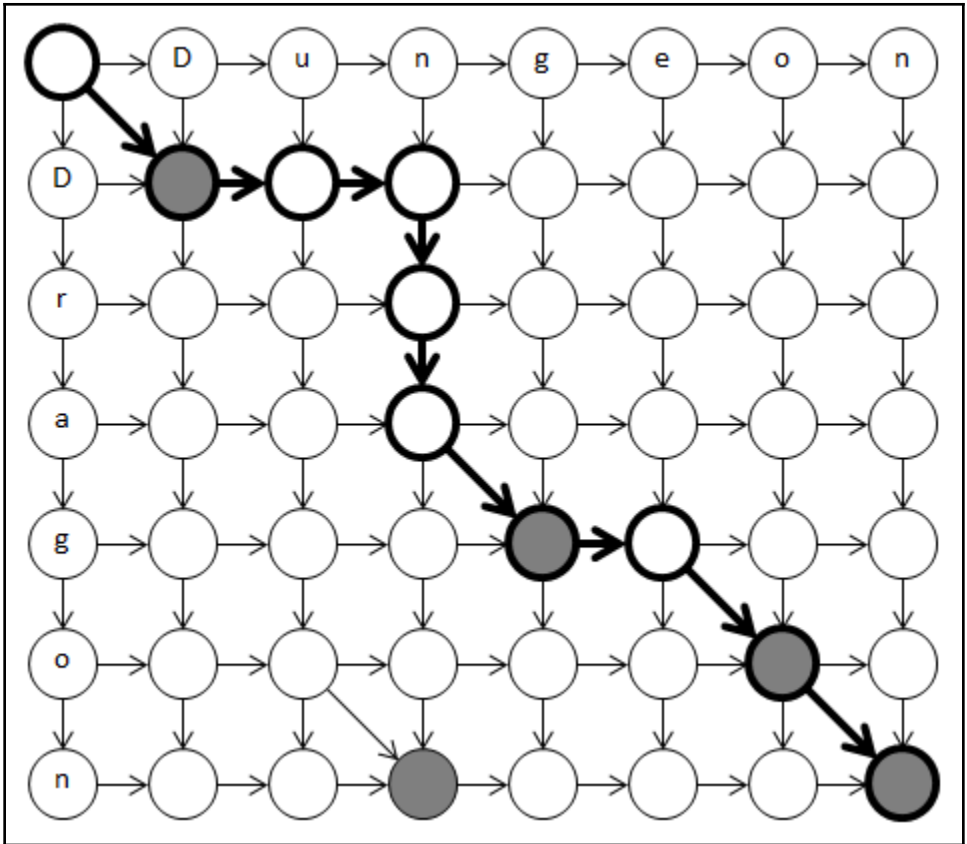
To the right of the table are two input fields: "Min Length:" with the value "10" and "Max Length:" with the value "12".

At the bottom of the window, there is a "Password:" label followed by a text box containing the generated password "HrZW(>hj4" and a "Generate" button.



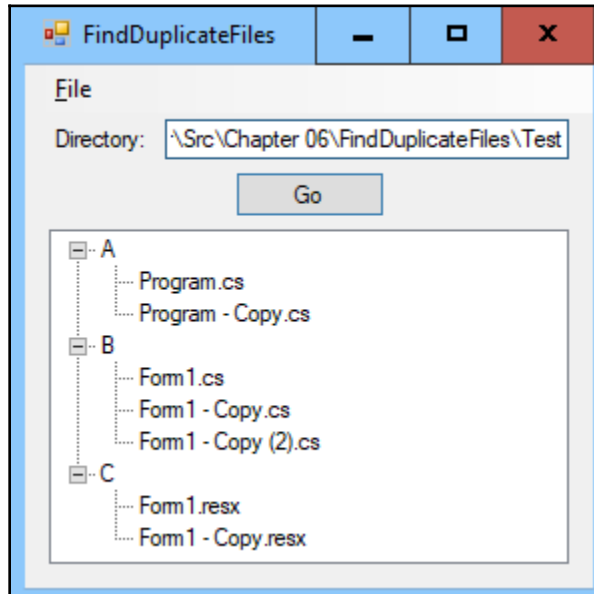
Chapter 5: Strings





		B	A	N	A	N	A
	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0
G	0	0	0	0	0	0	0
U	0	0	0	0	0	0	0
A	0	0	1	0	1	0	1
N	0	0	0	2	0	2	0
A	0	0	1	0	3	0	3

Chapter 6: Files and Directories



Chapter 7: Advanced C# and .NET Features

The screenshot shows a Windows application window titled "DirectorySizePLINQ". The window contains a "File" menu and several input fields and buttons. The "Directory" field is set to ".Src\Chapter 07\DirectorySizeLINQ". The "Include Subdirs" checkbox is checked. The "# Trials" field is set to "1000". A "Calculate" button is present. Below the button, there are three rows of performance data: "Foreach:" with a value of "3.3071", "LINQ:" with a value of "3.6679", and "PLINQ" with a value of "4.6705". At the bottom, there are two more rows: "Bytes:" with a value of "190876" and "File Size:" with a value of "186 KB".

Category	Value
Directory	.Src\Chapter 07\DirectorySizeLINQ
Include Subdirs	<input checked="" type="checkbox"/>
# Trials	1000
Calculate	Calculate
Foreach	3.3071
LINQ	3.6679
PLINQ	4.6705
Bytes	190876
File Size	186 KB

PrimesTable

Max:

	Biggest Prime	Time (sec)
IsPrime:	9999991	7.9251
Eratosthenes:	9999991	0.3321
Euler:	9999991	0.1052

Primes:

```

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47
53 59 61 67 71 73 79 83 89 97 101 103
107 109 113 127 131 137 139 149 151 157
163 167 173 179 181 191 193 197 199 211
223 227 229 233 239 241 251 257 263 269
271 277 281 283 293 307 311 313 317 331
337 347 349 353 359 367 373 379 383 389
397 401 409 419 421 431 433 439 443 449
457 461 463 467 479 487 491 499 503 509

```

ParallelPrime...

Max:

	Biggest Prime	Time (sec)
IsPrime:	9999991	2.3421
Eratosthenes:	9999991	0.2292
Euler:	9999991	0.1060

Primes:

```

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47
53 59 61 67 71 73 79 83 89 97 101 103
107 109 113 127 131 137 139 149 151 157
163 167 173 179 181 191 193 197 199 211
223 227 229 233 239 241 251 257 263 269
271 277 281 283 293 307 311 313 317 331
337 347 349 353 359 367 373 379 383 389
397 401 409 419 421 431 433 439 443 449
457 461 463 467 479 487 491 499 503 509

```

ParallelPrimeTuples

Max:

Spacing: Iterative:

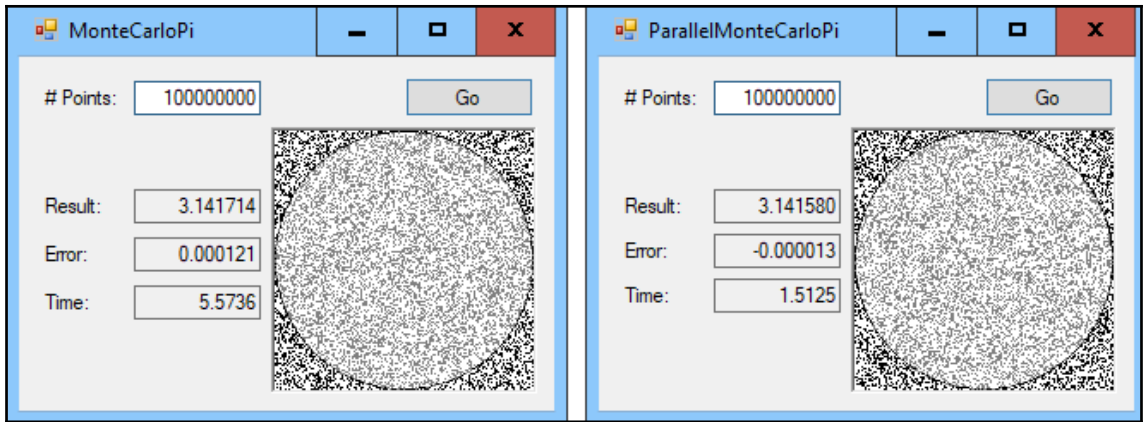
Per Group: Parallel:

```

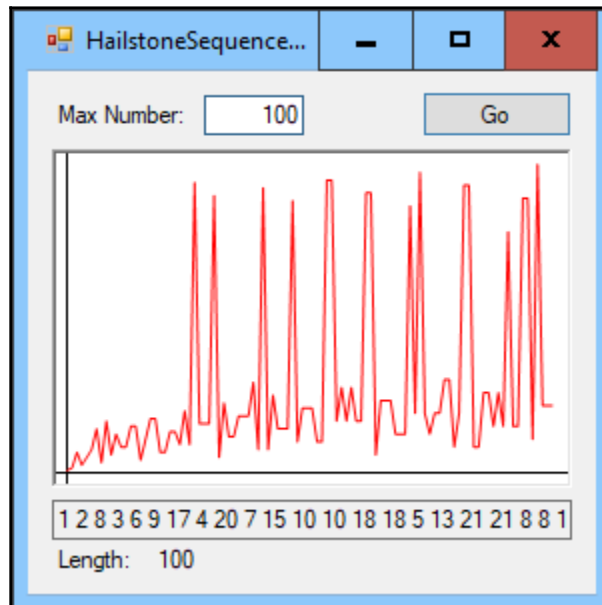
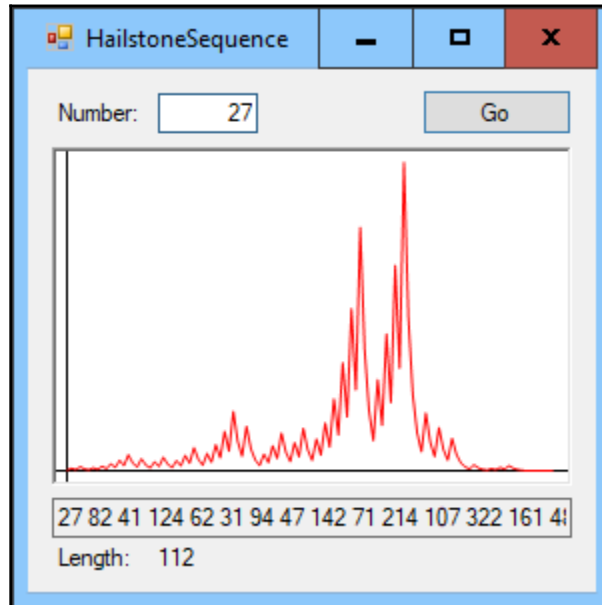
31567, 31573
31601, 31607
31643, 31649
31657, 31663
31721, 31727
31723, 31729
31793, 31799

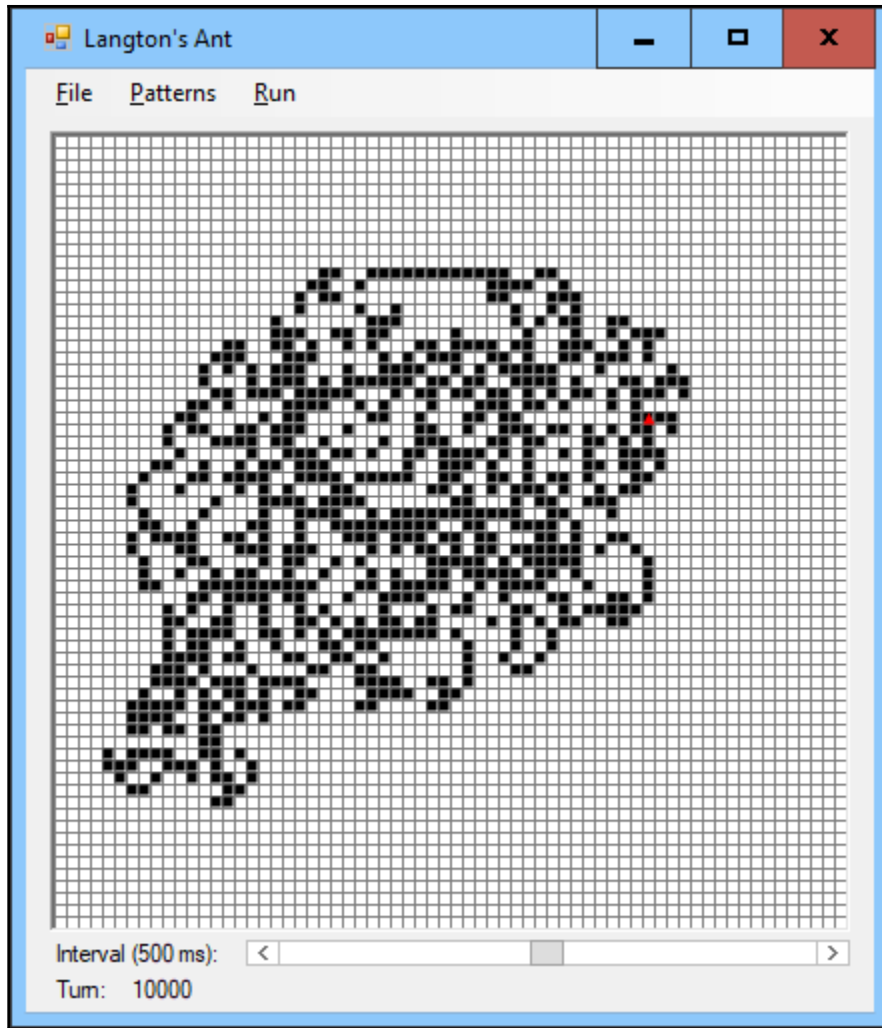
```

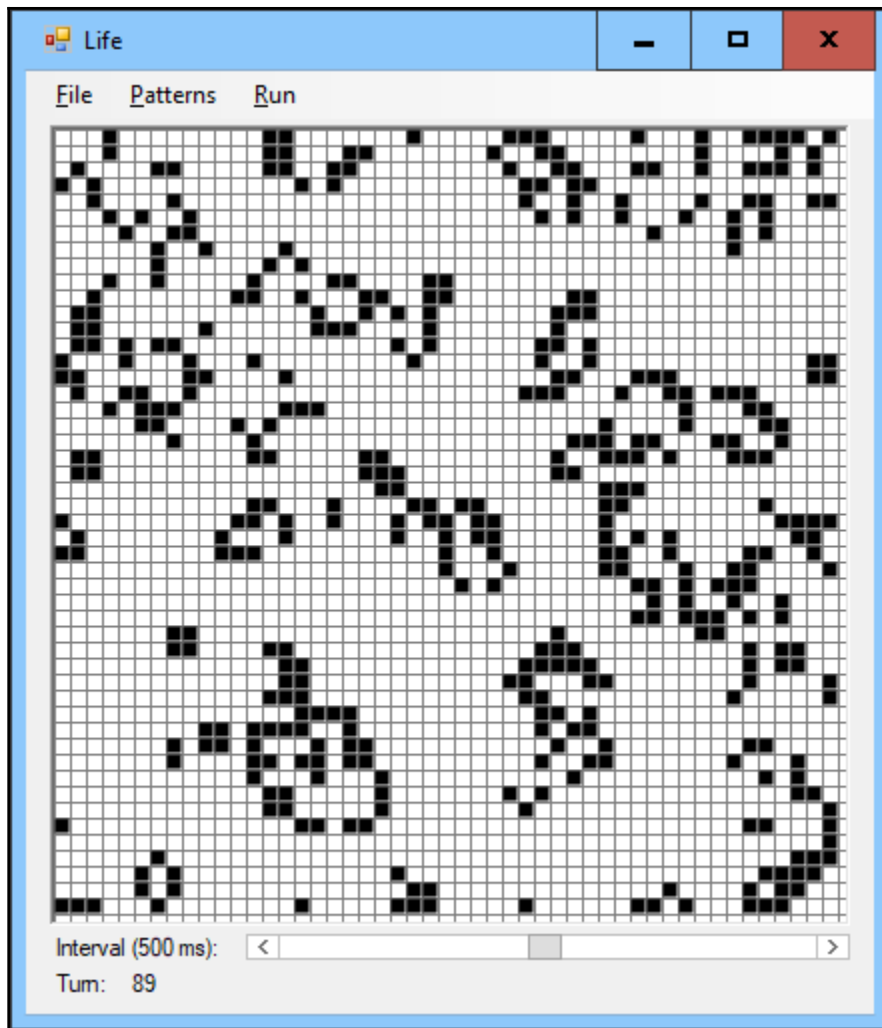
Groups: 879908



Chapter 8: Simulations

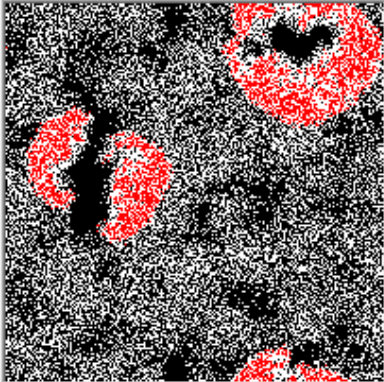


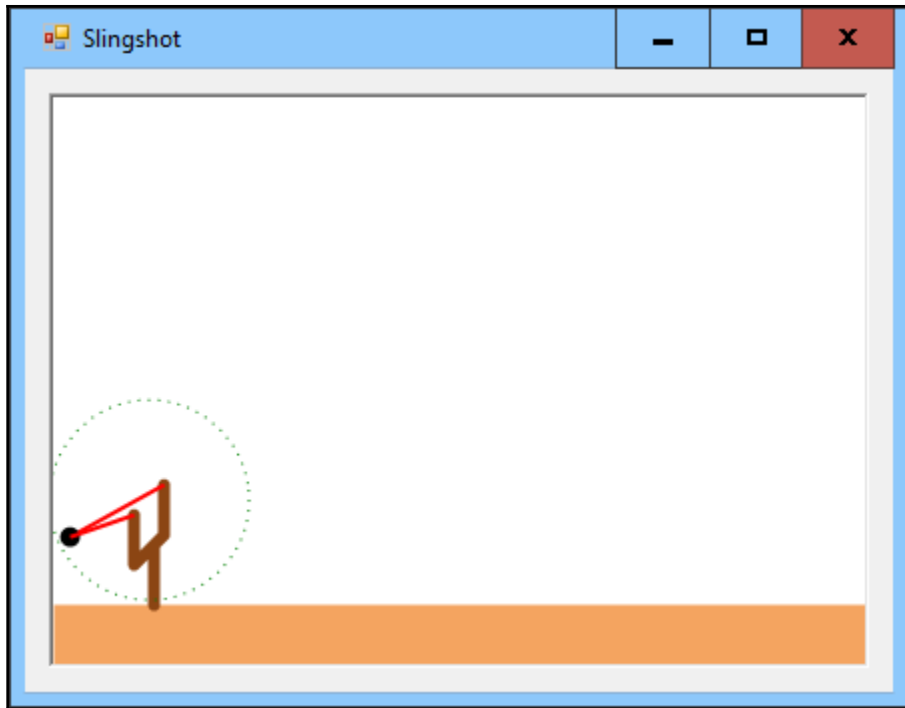


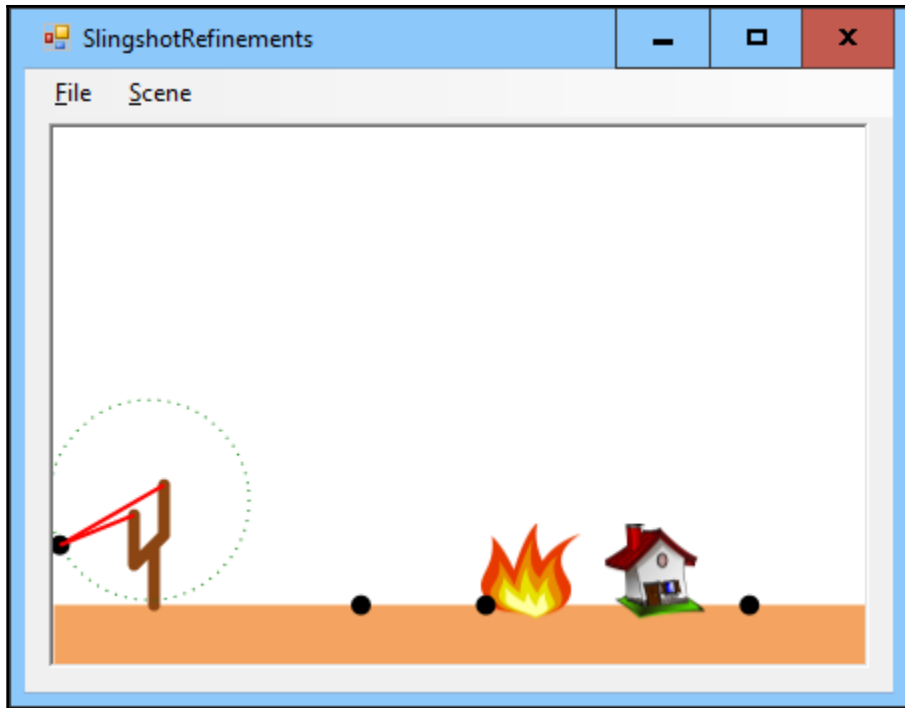


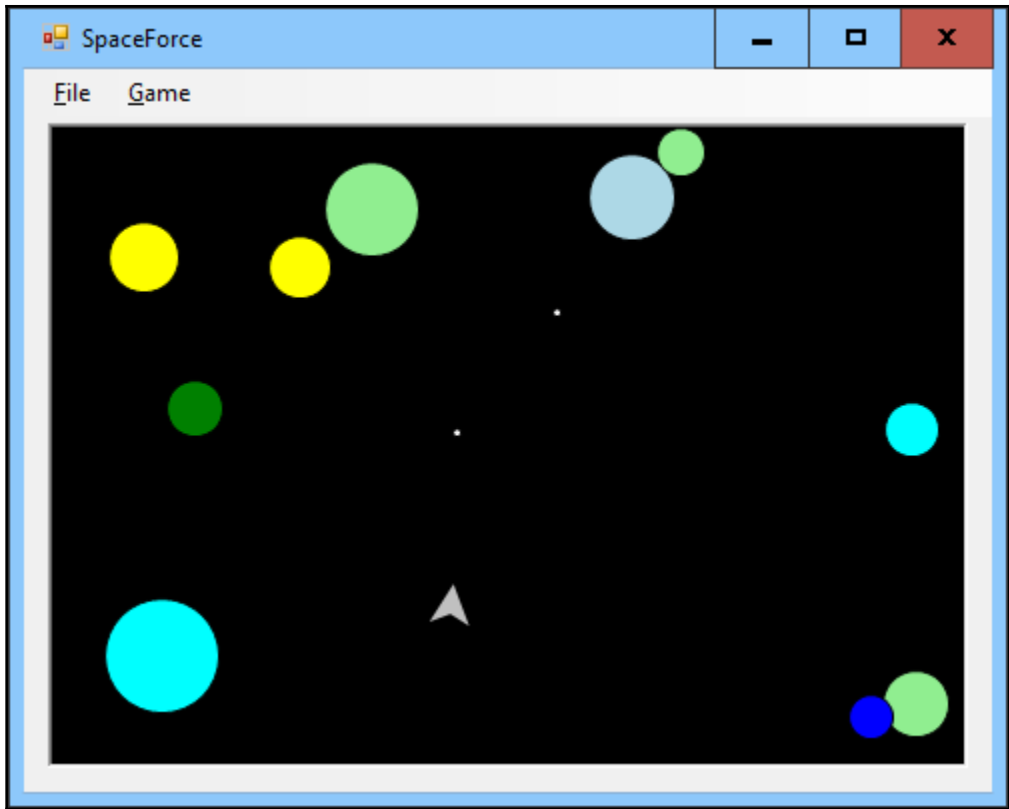
SharksAndFish

Grid Width:	<input type="text" value="200"/>	# Sharks:	<input type="text" value="400"/>	# Fish:	<input type="text" value="400"/>	Turn:	<input type="text" value="93"/>
Grid Height:	<input type="text" value="200"/>	Energy Loss:	<input type="text" value="1"/>	Breed Time:	<input type="text" value="20"/>	# Fish:	<input type="text" value="28223"/>
ms/Turn:	<input type="text" value="10"/>	Split Energy:	<input type="text" value="10"/>	Energy:	<input type="text" value="100"/>	# Sharks:	<input type="text" value="7957"/>









Chapter 9: Cryptography

The screenshot shows a window titled "CPRNG" with a blue title bar. It contains three input fields: "# Numbers:" with the value "1000000", "Minimum:" with "0", and "Maximum:" with "10". A "Generate" button is to the right of the "# Numbers:" field. Below these fields is a table with four columns: "Value", "Occurrences", "Fraction", and "Error". The table lists values from 0 to 9 with their respective counts and statistical data.

Value	Occurrences	Fraction	Error
0	99922	0.099922	-0.000078
1	99641	0.099641	-0.000359
2	99664	0.099664	-0.000336
3	100267	0.100267	0.000267
4	99815	0.099815	-0.000185
5	99855	0.099855	-0.000145
6	99721	0.099721	-0.000279
7	100300	0.100300	0.000300
8	100394	0.100394	0.000394
9	100421	0.100421	0.000421

The screenshot shows a window titled "EncryptDecryptStrings" with a blue title bar. It has a "Plaintext:" field containing "This is the secret message! これは秘密のメッセージです!". Below it is a "Password:" field with "ThePassword" and an "Encrypt" button. The "Ciphertext:" field shows "33-33-93-CB-6E-BE-3F-B4-95-27-EB-2B-C4-C3-55-1B-09-FE-41-". Below that is another "Password:" field with "ThePassword" and a "Decrypt" button. The "Recovered:" field at the bottom contains the original plaintext: "This is the secret message! これは秘密のメッセージです!".

