

My breakpoints:

00401226	.^74 BE	JE SHORT CRACKME.004011E6	
00401228	. 68 8E214000	PUSH CRACKME.0040218E	ASCII "Ben"
0040122D	. E8 4C010000	CALL CRACKME.0040137E	
00401232	. 50	PUSH EAX	
00401238	. 68 7E214000	PUSH CRACKME.0040217E	ASCII "1234"
0040123B	. E8 9B010000	CALL CRACKME.004013D8	
0040123D	. 83C4 04	ADD ESP,4	

Sets users input for name input to uppercase:

0040137E	\$. 8B7424 04	MOV ESI,DWORD PTR SS:[ESP+4]	
00401382	. 56	PUSH ESI	
00401383	> 8A06	MOV AL,BYTE PTR DS:[ESI]	
00401385	. 84C0	TEST AL,AL	
00401387	.v74 13	JE SHORT CRACKME.0040139C	
00401389	. 3C 41	CMP AL,41	
0040138B	.v72 1F	JB SHORT CRACKME.004013AC	
0040138D	. 3C 5A	CMP AL,5A	
0040138F	.v73 03	JNB SHORT CRACKME.00401394	
00401391	. 46	INC ESI	
00401392	.^EB EF	JMP SHORT CRACKME.00401383	
00401394	> E8 39000000	CALL CRACKME.004013D2	
00401399	. 46	INC ESI	
0040139A	.^EB E7	JMP SHORT CRACKME.00401383	
0040139C	> 5E	POP ESI	

Adds ASCII values for each letter in the new uppercase string to obtain a total value:

004013C2	\$. 33FF	XOR EDI,EDI	
004013C4	. 33DB	XOR EBX,EBX	
004013C6	> 8A1E	MOV BL,BYTE PTR DS:[ESI]	
004013C8	. 84DB	TEST BL,BL	
004013CA	.v74 05	JE SHORT CRACKME.004013D1	
004013CC	. 03FB	ADD EDI,EBX	
004013CE	. 46	INC ESI	
004013CF	.^EB F5	JMP SHORT CRACKME.004013C6	

Xors that obtained total value in hexadecimal to 5678h:

0040139D	. E8 20000000	CALL CRACKME.004013C2	
004013A2	. 81F7 78560000	XOR EDI,5678	
004013A8	. 8BC7	MOV EAX,EDI	
004013AA	.vEB 15	JMP SHORT CRACKME.004013C1	

Take users input for serial and for each integer multiples them by 10 and then adds them all together:

004013D8	\$. 33C0	XOR EAX,EAX	
004013DA	. 33FF	XOR EDI,EDI	
004013DC	. 33DB	XOR EBX,EBX	
004013DE	. 8B7424 04	MOV ESI,DWORD PTR SS:[ESP+4]	
004013E2	> B0 0A	MOV AL,0A	
004013E4	. 8A1E	MOV BL,BYTE PTR DS:[ESI]	
004013E6	. 84DB	TEST BL,BL	
004013E8	.v74 0B	JE SHORT CRACKME.004013F5	
004013EA	. 80EB 30	SUB BL,30	
004013ED	. 0FAFF8	IMUL EDI,EAX	
004013F0	. 03FB	ADD EDI,EBX	
004013F2	. 46	INC ESI	
004013F3	.^EB ED	JMP SHORT CRACKME.004013E2	

Xor's that number in hexadecimal with 1234h

004013F5	> 81F7 34120000	XOR EDI,1234	
004013FB	. 8BDF	MOV EBX,EDI	
004013FD	. C3	RETN	

Compare the two values found above and jump to appropriate success or failure screen depending on if they are equal:

00401241	. 3BC3	CMP EAX,EBX	
00401243	.v74 07	JE SHORT CRACKME.0040124C	
00401245	. E8 18010000	CALL CRACKME.00401362	
0040124A	.^EB 9A	JMP SHORT CRACKME.004011E6	
0040124C	> E8 FC000000	CALL CRACKME.0040134D	
00401251	.^EB 93	JMP SHORT CRACKME.004011E6	

**So algorithm for finding serial is:**

1. Take Input for Name and convert all letters to uppercase
2. Sum all ASCII values for the characters in the now uppercase name
3. Convert that Number to hexadecimal

4. Xor with 5678h
5. Xor that answer with 1234h
6. If in Hexadecimal, convert to decimal to get the Serial number.

**For my Name:**

Ben -> BEN -> 66+69+78 = 213 -> D5h -> Xor with 5678h -> 56ad -> xor with 1234h -> 4499h -> **17561**

