

```

1 # -----TASK 1-----
2
3 less_than_ten = True
4 while less_than_ten:
5     try:
6         numItems = int(input("Enter amount of items to be put on auction " +
7                               "(atleast 10): "))
8         if numItems >= 10:
9             less_than_ten = False
10    except ValueError:
11        print("\nCan only be numbers.")
12
13 # Lists containing different properties of auction items.
14 # Dictionary would have worked better but 0' Level restrictions.
15 ItmNumList = []
16 ItmDescList = []
17 ReservePricelist = []
18 NumBidsList = []      # List containing number of bids for each item
19 BidList = []          # List containing highest bid for each item
20 BuyerNumList = []     # List containing buyer number of highest bidders
21 SoldList = []         # List containing whether each item is sold or not
22
23 # Loop for number of items times.
24 for i in range(numItems):
25     all_input_correct = False
26     while not all_input_correct:
27         num = input("Enter item number: ")
28         try:
29             # Check if input can be converted to integer.
30             # If it can't be converted then it contains non numbers.
31             int(num)
32
33         except ValueError:
34             print("Item number may only contain whole numbers.")
35
36         else:
37             # This part only executes if num contains only numbers.
38             if int(num) < 0:
39                 # Negative numbers are not allowed.
40                 print("Item number may only contain whole numbers.")
41             elif num in ItmNumList:
42                 print("Item number needs to be unique.")
43             else:
44                 ItmNumList.append(num)
45                 all_input_correct = True
46
47     ItmDescList.append(input("Enter item description: "))
48
49     reserve_price_input = input("Enter reserve price: $")
50     is_number = False
51     # Defaults to false so that condition is checked at least once.
52     while not is_number:
53         # This part is checked repeatedly until input is valid.
54         try:
55             int(reserve_price_input)
56         except ValueError:
57             print("Reserve price may only be a positive whole number." +
58                   " Try again.")

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59         reserve_price_input = input("Enter reserve price: $")
60     else:
61         # is_number is set to True only when ValueError is not raised.
62         is_number = True
63
64     # The input does not immediately get added to the reserve prices list.
65     while reserve_price_input < 0:
66         print("Reserve price must be positive. Try again.")
67         reserve_price = int(input("Enter reserve price: $"))
68     ReservePriceList.append(reserve_price_input) # Add it after the checks.
69
70     NumBidsList.append(0)
71     BidList.append(0)
72     BuyerNumList.append("")
73     SoldList.append(False)
74
75
76
77 # -----TASK 2-----
78
79 # Print all the available items for selection using Item Number.
80 print("Available items:")
81 for i in range(numItems):
82     print(ItmNumList[i], ItmDescList[i], sep=": ")
83
84 WantToBid = True # When false; break out of loop.
85 while WantToBid:
86     choice = input("Do you want to place a bid? (y/n): ")
87     # If the choice is 'n' then WantToBid is set to False and the elif
88     # segment does not run.
89     # If choice is 'y' then WantToBid is not modified and the elif segment
90     # is run.
91     # If choice is neither 'y' nor 'n' then nothing happens and the user is
92     # prompted again.
93
94     if choice == 'n':
95         WantToBid = False
96
97     elif choice == 'y':
98         SelectedItem = '' # Stores item number of selected item.
99         BidAmount = 0
100        BuyerNumber = ''
101
102        item_num_correct = False # True if selected item is available.
103        while not item_num_correct:
104            SelectedItem = input("Enter item number from above: ")
105            if SelectedItem in ItmNumList:
106                # This segment only executes if the selected item number
107                # exists in ItmNumList.
108                item_num_correct = True
109
110                list_index = ItmNumList.index(SelectedItem)
111                print() # Blank line
112                print(SelectedItem, ItmDescList[list_index])
113                print("Highest bid: $" + str(BidList[list_index]))
114
115            else:
116                print("Invalid item number; try again.")
117

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118     bid_correct = False # True if bid is higher than current highest.
119     while not bid_correct:
120         BidAmount = int(input("Enter your bid: $"))
121         if BidAmount > BidList[ItmNumList.index(SelectedItem)]:
122             bid_correct = True
123         else:
124             print("Bid amount must be higher than previous bid.")
125
126     BuyerNumber = input("Enter buyer number: ")
127     list_index = ItmNumList.index(SelectedItem) # Index of item.
128
129     BidList[list_index] = BidAmount
130     BuyerNumList[list_index] = BuyerNumber
131     NumBidsList[list_index] += 1
132
133
134
135 # -----TASK 3-----
136 TotalFee = 0.0 # 0.0 instead of 0 because it needs to be float.
137 LessThanReservePrice = [] # Items with highest bid lower than reserve.
138 NoBids = [] # Items with no bids.
139
140 for i in range(numItems):
141     if BidList[i] >= ReservePriceList[i]: # Sold?
142         SoldList[i] = True
143         TotalFee += BidList[i] * 0.1 # Fee is 10% of bid.
144     else:
145         LessThanReservePrice.append(ItmNumList[i])
146     if NumBidsList[i] == 0: # No bids?
147         NoBids.append(ItmNumList[i])
148
149
150 # Printing information.
151 print("\n-----")
152 print("Total fee: " + str(TotalFee))
153 print("Number of items sold: " + str(numItems - len(LessThanReservePrice)))
154
155 print("\nThe {0} items that have not".format(len(LessThanReservePrice)),
156       "reached their reserved price are:")
157 for x in LessThanReservePrice:
158     print(x, " Highest bid: $", BidList[ItmNumList.index(x)], sep='')
159
160 print("\nThe {0} items that have recieved no bids are:".format(len(NoBids)))
161 print(', '.join(NoBids)) # Print NoBids delimited with ', '
162
163 input() # Wait before exiting.

```