In [15]:

```
import pandas as pd
import altair as alt

#BC Employment Data
#https://www2.gov.bc.ca/assets/gov/data/statistics/employment-labour-market/lfs_employment_and_unemployment_rate_by_industry_and_development_region.xls

#1.import xls
#2.set row with years as header
#3.extract columns 0, '2019', and '2020'
#4.rename columns
#5.extract specific rows
bc_employment_changes = pd.read_excel('BC_Employment_2019-2020_Changes.xls', sheet_name='BC', header=2, usecols=[0,49,51]).rename(columns ={
            'Note: figures of less than 1.5 (1,500 persons) suppressed':'Industry_Type','2019':'2019 Employment', '2020':'2020 Employment'})
subsector_drill_down = bc_employment_changes.loc[[4,6,7,8,9,10,12,14,15,16,17,19,20,21,22,23,24,25,26,27,28,29,34,35,37,38,39,40,41,42,44,
                                                  45,46,47,49,50,51,52,53,55,56,58,59,61,62,63,64,66,67,69,70,72,73,74,75,
                                                  77,78,79]]

#7.Create "employment_delta" column to show job losses and gains between 2019 and 2020.
employment_delta = subsector_drill_down.assign(Thousands_of_Jobs =
                                               (-1*(subsector_drill_down['2019 Employment'] - subsector_drill_down['2020 Employment'])))

#8.Create "Percentage_Change" Column
#9.Reduce "Percentage_Change" to two decimal place (no rounding)***
difference = employment_delta.assign(Percentage_Change = (100 * (Employment_Delta['Thousands_of_Jobs'] / Employment_Delta['2019 Employment'])))
difference.to_csv(r'C:\Users\justi\Dropbox\CompSci_Projects\BC_Jobs_2019-2020_Changes\Delta_2019_2020.csv', index = False)


#10. Sort columns in a descending order.
sort_descending = difference.sort_values('Percentage_Change', ascending = False).drop(columns =
                                                                                      ['2019 Employment', '2020 Employment', 'Thousands_of_Jobs'])

#11. Visualize 'Percentage Difference' using bar chart
#https://altair-viz.github.io/gallery/bar_chart_sorted.html
alt.Chart(sort_descending).mark_bar().encode(
                x='Percentage_Change',
                y=alt.Y('Industry_Type', sort='-x')
               ).properties(title='Changes in BC Employment Levels by Industry Type (2019 to 2020)')
```


Changes in BC Employment Levels by Industry Type (2019 to 2020)
Chemical Manufacturing
Plastics and Rubber Products Manufa...
Fishing, Hunting and Trapping
Utilities
Electrical Equipment, Appliance & Co...
Non-Metallic Mineral Product Manufac...
Employment and Business Services
Insurance Carriers and Funds & Other...
Local, Municipal & Regional Public Ad...
Computer System Design Services
Paper Manufacturing
Agriculture
Hospitals
Primary and Secondary
Transportation Equipment Manufacturi...
Provincial and Territorial Public Admin...
Clothing Mfg & Leather & Allied Produ...
Wholesale Trade
Transit and Sightseeing Transportation
Nursing and Residential Care Facilities
Architectural, Engineering and Design...
Other Professional Services
Information and Cultural Industries
Finance
Primary Metal Manufacturing
Repair and Maintenance
Management, Scientific and Technical...
Forestry and Logging with support acti...
Other Transportation and Storage
Wood Product Manufacturing
Real Estate
Food, Beverage and Tobacco Produc...
Truck Transportation
Retail Trade
Legal Services
Other Educational Services
Transportation
Computer and Electronic Product Man...
Ambulatory Health Care Services
Federal Gov Public Administration (in...
Social Assistance
Miscellaneous Manufacturing
Construction
Food Services and Drinking Places
Mining and Oil and Gas Extraction
Religious, Grant-Making, Civic, Profes...
Personal and Laundry Services
Postal and Courier Services
Other Management and Administrativ...
Fabricated Metal Product Manufacturing
Rental & Leasing, Owners & Lessors ...
Accommodation Services
Air Transportation
Furniture and Related Product Manuf...
Arts, Entertainment and Recreation
Machinery Manufacturing
Printing and Related Support Activities
Private Households
Industry_Type
−60
−40
−20
0
20
40
60
80
100
Percentage_Change

In [ ]:
```
1
```