

# GTD - Case study

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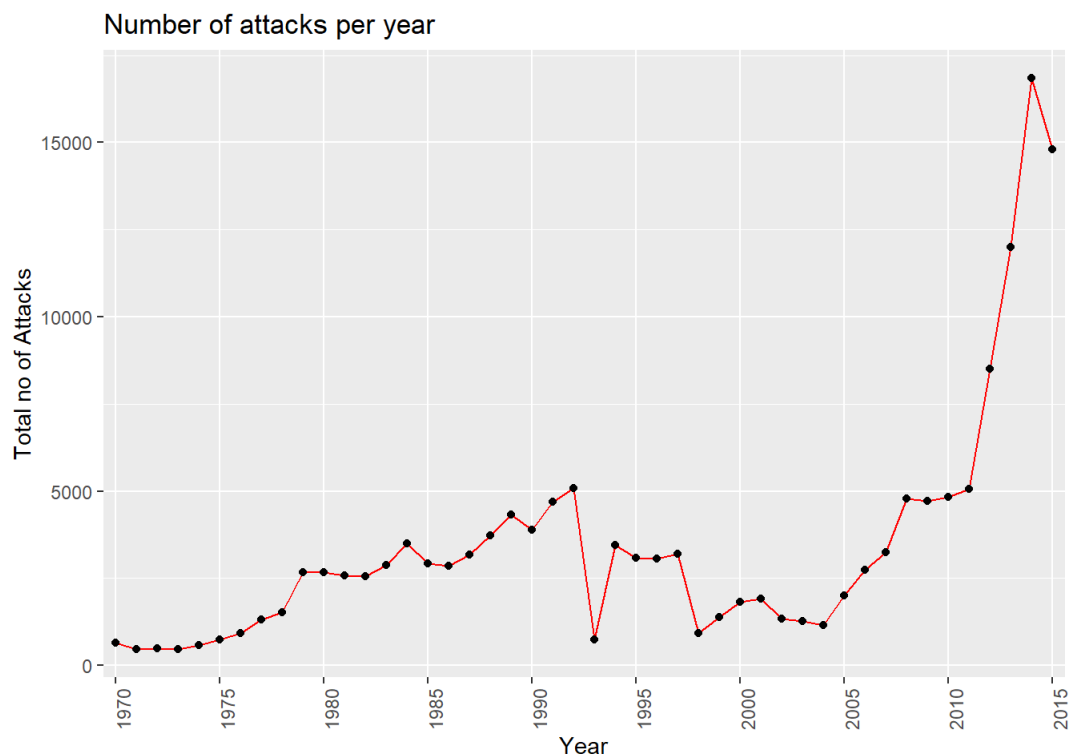
03 September 2018

## 1. Number of Attacks per year

```
qla=ql %>% group_by(iyear) %>% summarise(TotalAttacks=n()) %>% arrange(-TotalAttacks)
```

```
## Warning: package 'bindrcpp' was built under R version 3.4.4
```

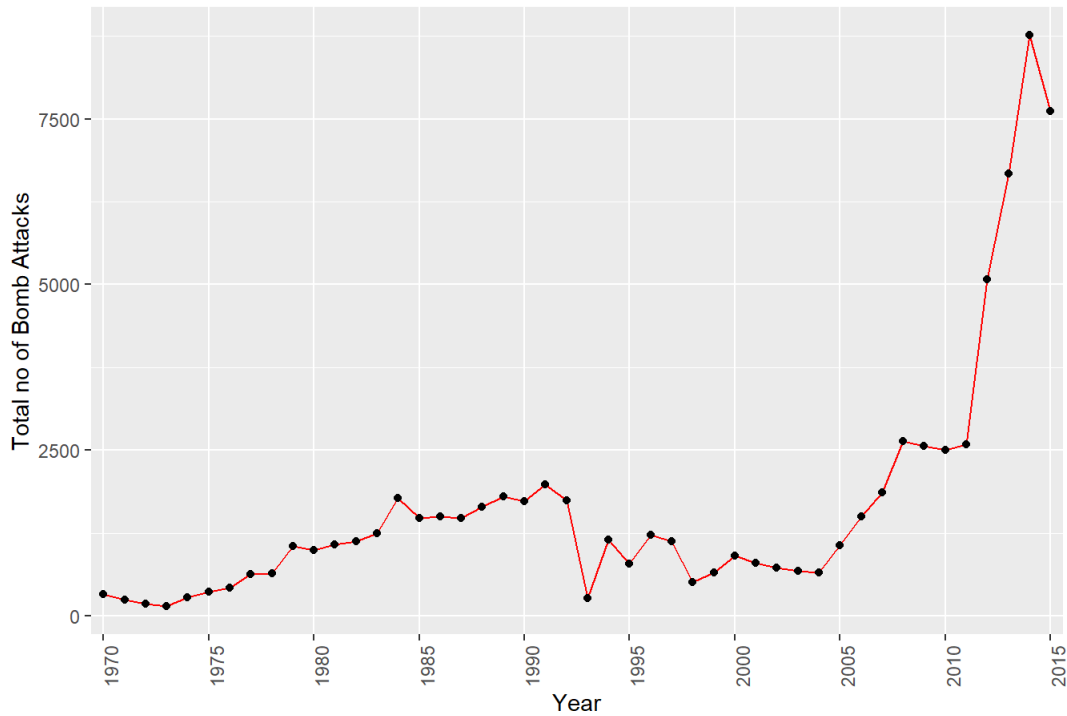
```
ggplot(qla,aes(x=iyear,y=TotalAttacks)) + geom_line(color="red")+ geom_point() +  
scale_x_discrete(limit = seq(1970,2045,by=5)) +  
labs(x = "Year",y = "Total no of Attacks",title = "Number of attacks per year") +  
theme(legend.title = element_blank(),axis.text.x = element_text(angle = 90))
```



## 2. Number of bombing per year

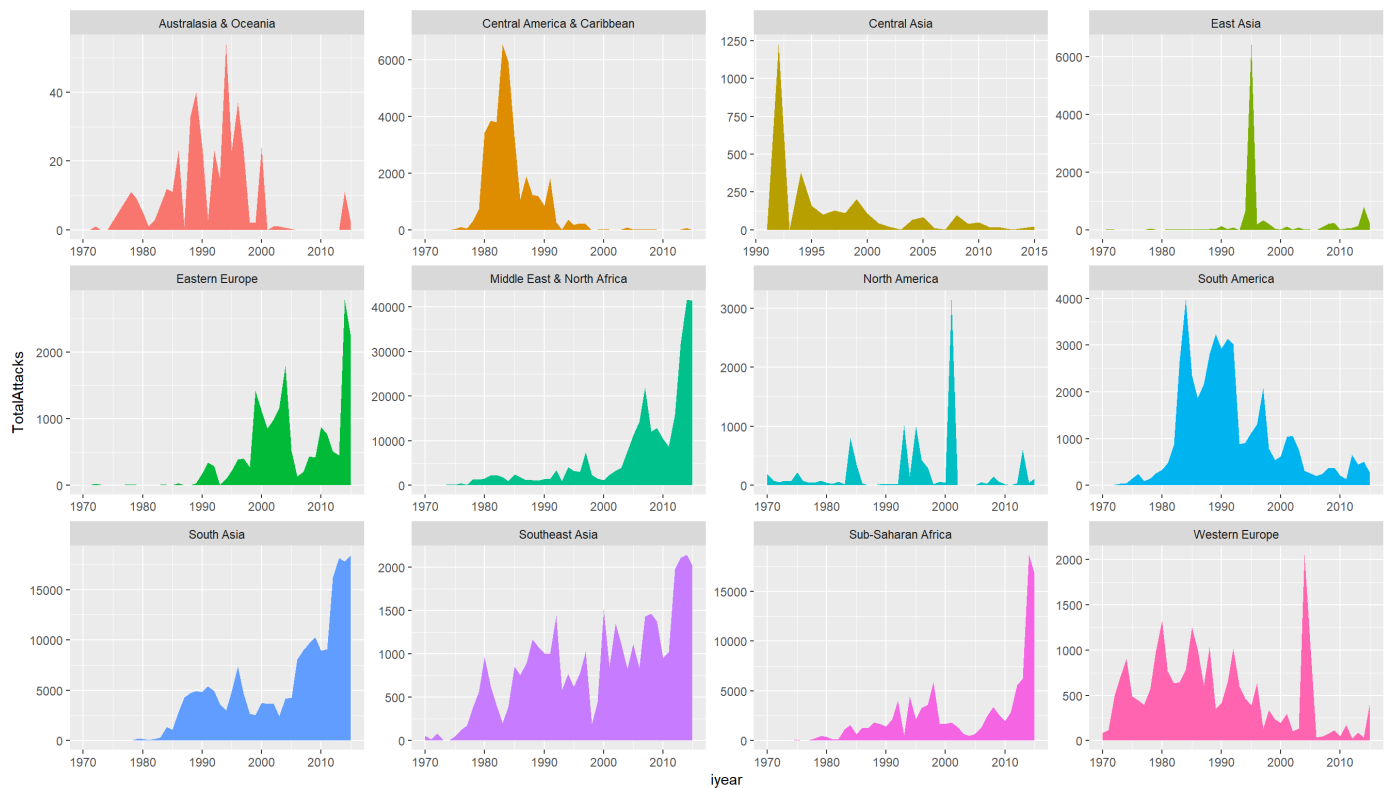
```
q2a= q2 %>% group_by(iyear) %>% summarise(BombingAttacks=sum(attacktype1==3)) %>% arrange(-BombingAttacks)  
ggplot(q2a,aes(x=iyear,y=BombingAttacks)) + geom_line(color="red") + geom_point() +  
scale_x_discrete(limit = seq(1970,2045,by=5)) +  
labs(x = "Year",y = "Total no of Bomb Attacks",title = "Number of bombing per year") +  
theme(legend.title = element_blank(),axis.text.x = element_text(angle = 90))
```

## Number of bombing per year



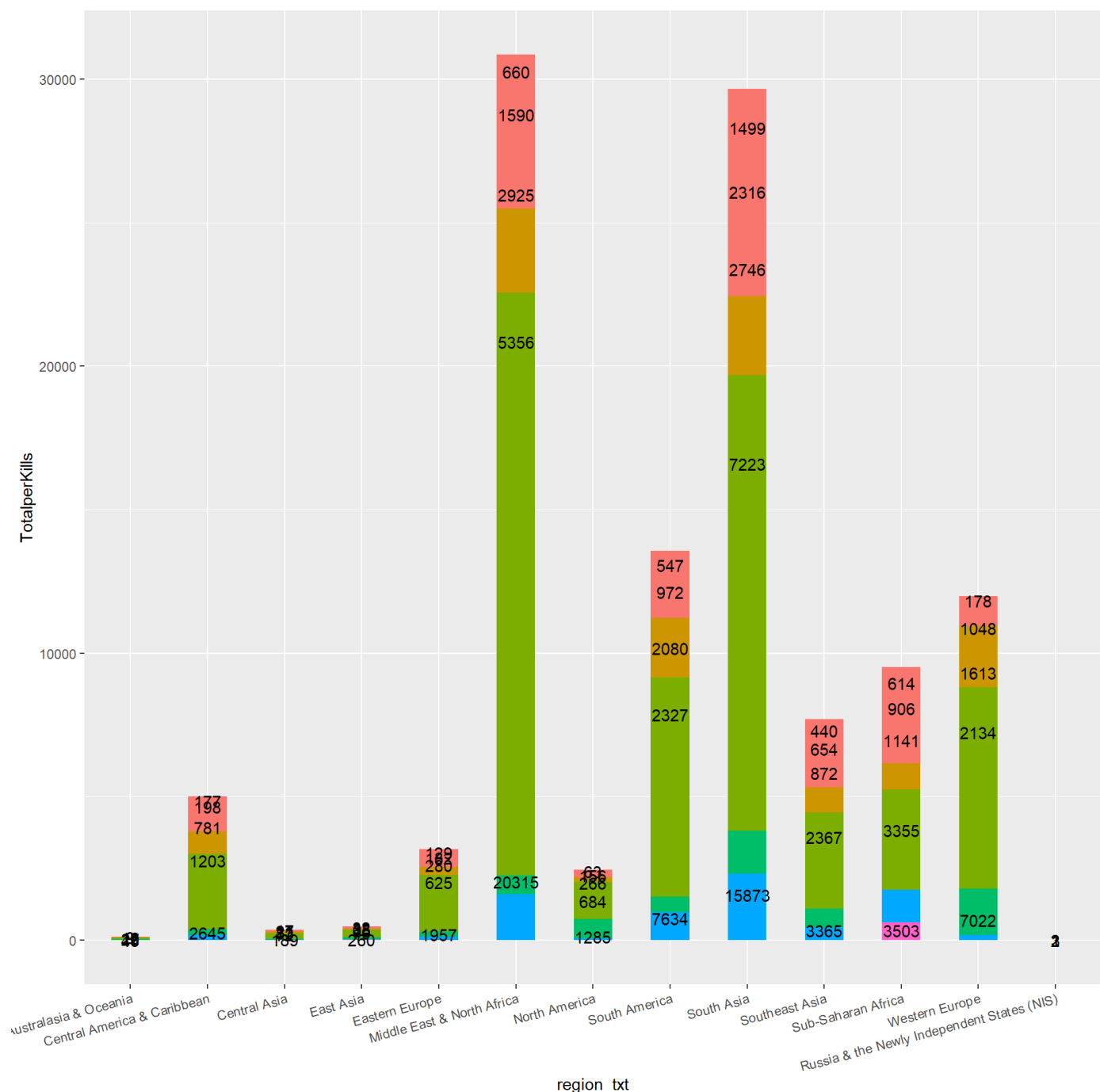
### 3. Terrorist attacks region wise per year

```
q3a= q3 %>%filter(!region_txt %in% c("Russia & the Newly Independent States (NIS)")) %>%group_by(iyear,region
n_txt) %>% summarise(TotalAttacks=sum(nkill,na.rm = T) + sum(nwound,na.rm = T)) %>% arrange(-TotalAttacks)
ggplot(q3a ,aes(x = iyear , y = TotalAttacks) ) + geom_area(aes(fill = as.factor(region_txt))) +
  facet_wrap(as.factor(region_txt) ~ . , scales = "free") +
  theme(legend.title = element_blank(),legend.position = "none")
```



### 4. Top 5 type of terror attacks per region

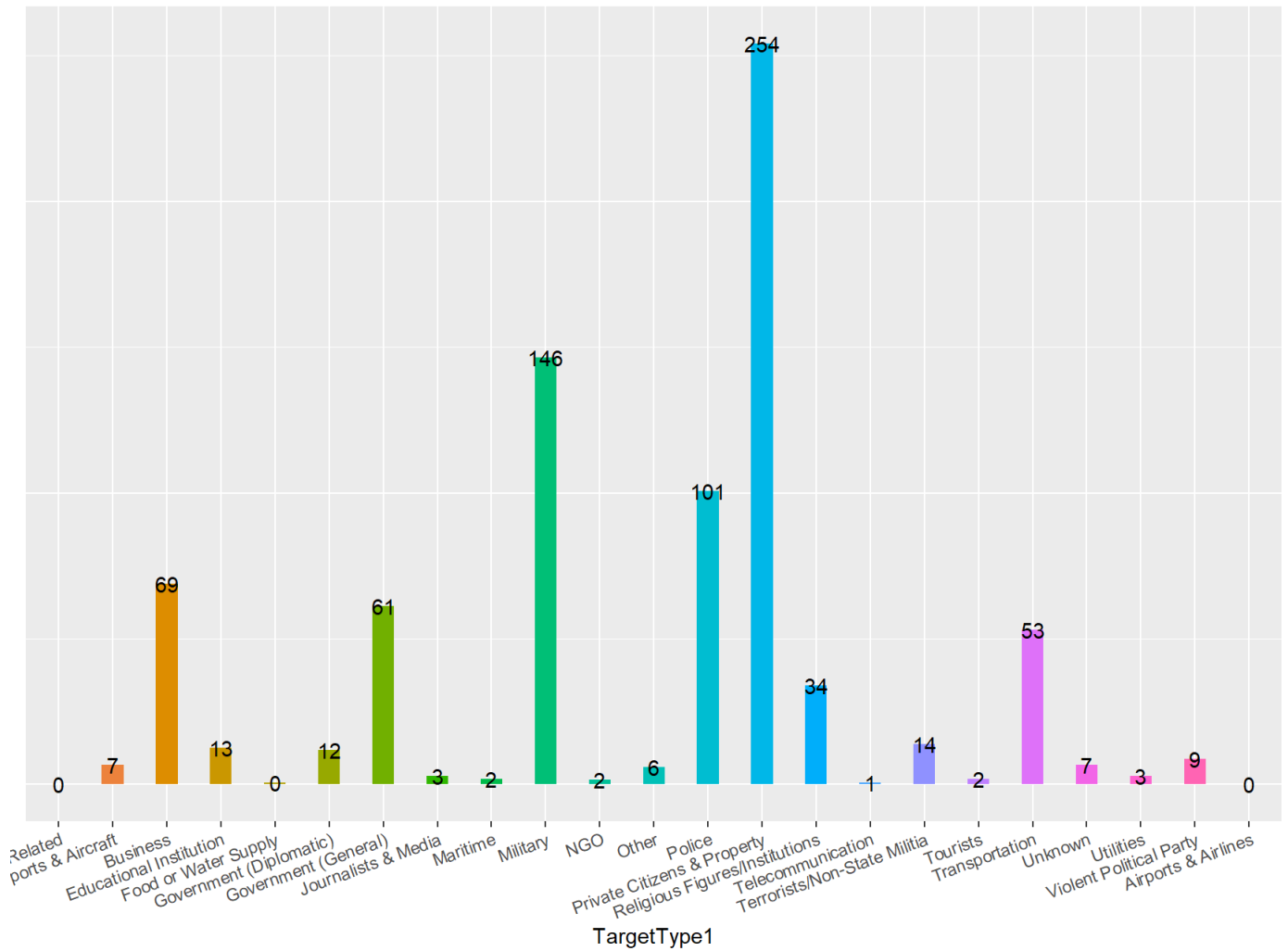
```
q4a=q4 %>% filter(doubtterr==0) %>% group_by(region_txt,attacktype1_txt) %>% summarise(TotalperKills=n()) %
>% arrange(region_txt,-TotalperKills) %>% top_n(n=5,wt=TotalperKills)
ggplot(q4a,aes(x=region_txt,y=TotalperKills)) + geom_bar(width =.5,stat = "identity",aes(fill=attacktype1_tx
t)) +
  theme(axis.text.x=element_text(angle=15, hjust=1)) +
  geom_text(data = q4a, aes(x = region_txt, y = TotalperKills, label = TotalperKills),
    position = position_stack(vjust = .1)) +
  theme(legend.title = element_blank(),legend.position = "none")
```



##### 5. Heaviest hit Target types (Based on both Killed and wounded)

```
q5a= q5 %>% group_by(targtype1_txt) %>% summarise(TotalDamage=sum(nkill,na.rm = T)+sum(nwound,na.rm = T)) %>
% arrange(-TotalDamage)
ggplot(q5a,aes(x=targtype1_txt,y=TotalDamage)) + geom_bar(width = .4,stat = "Identity",aes(fill=targtype1_tx
t)) +
  theme(axis.text.x = element_text(angle = 20,hjust = 1)) +
  labs(x = "TargetType1",y = "TotalDamage",title = "Heaviest hit target type(Value in 10^3)") +
  geom_text(data = q5a, aes(x = targtype1_txt, y = TotalDamage, label = round(TotalDamage/1000)),
    position = position_stack(vjust = 1)) +
  theme(legend.title = element_blank(),legend.position = "none") +
  theme(axis.title.y = element_blank(), axis.text.y = element_blank(), axis.ticks.y =element_blank())
```

Heaviest hit target type(Value in 10^3)

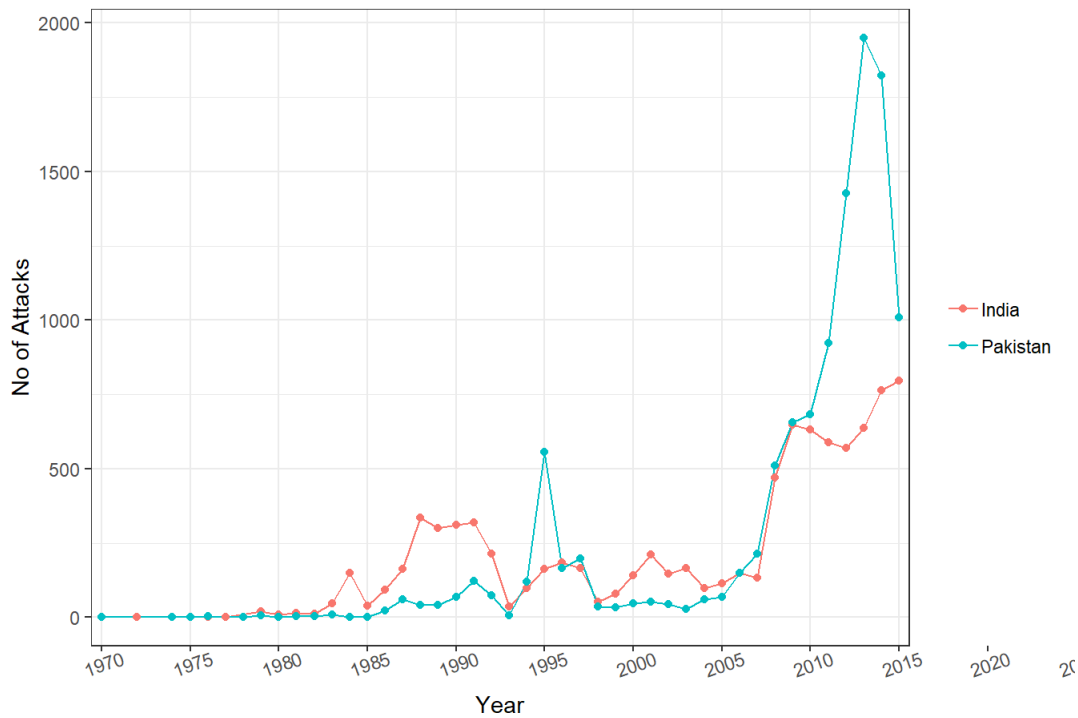


#### 6. Terrorist attack in India and Pakistan in last 45 years

```
q62=q61 %>% filter((country_txt %in% c("India", "Pakistan")) & (doubtterr==0 | doubtterr==9)) %>% group_by(country_txt, iyear) %>% summarise(TotalAttacks=n())

ggplot(q62, aes(x = iyear, y = TotalAttacks, fill = country_txt, color = country_txt)) +
  theme_bw() +
  geom_line() + geom_point() + scale_x_discrete(limit = seq(1970, 2045, by=5)) +
  labs(x = "Year", y = "No of Attacks", title = "India Vs Pakistan") +
  theme(legend.title = element_blank(), axis.text.x = element_text(angle = 20))
```

## India Vs Pakistan



## 7. Terror attack in United States vs Russian Federation/USSR in last 45 years

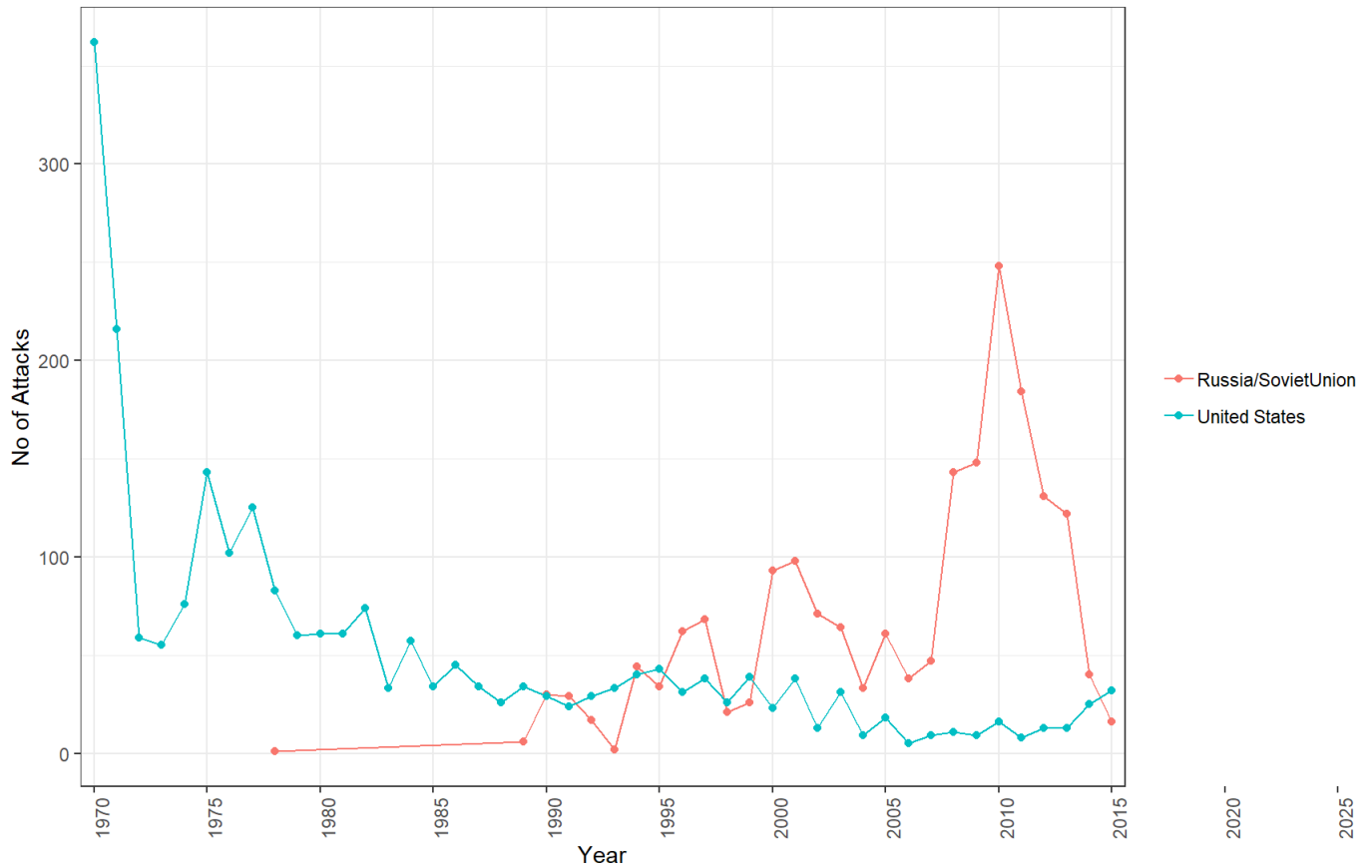
```
q7a=q6 %>% filter(country_txt %in% c("United States", "Soviet Union", "Russia")) %>% group_by(country_txt, target_type1_txt, attack_type1_txt) %>%
  summarise(TotalCasualties=sum(nkill, na.rm = T)+sum(nwound, na.rm = T))
q7a$country_txt <- as.character(q7a$country_txt) #concatination russia and soviet
q7a$country_txt[q7a$country_txt=="Russia"] <- "Russia/SovietUnion"
q7a$country_txt[q7a$country_txt=="Soviet Union"] <- "Russia/SovietUnion"
q7a$country_txt<-as.factor(q7a$country_txt)

q61$country_txt <- as.character(q61$country_txt) #concatination russia and soviet
q61$country_txt[q61$country_txt=="Russia"] <- "Russia/SovietUnion"
q61$country_txt[q61$country_txt=="Soviet Union"] <- "Russia/SovietUnion"
q61$country_txt<-as.factor(q61$country_txt)

q7b=q61 %>% filter((country_txt %in% c("United States", "Russia/SovietUnion")) & (doubtterr==0 | doubtterr==9)) %>% group_by(country_txt, iyear) %>%
  summarise(TotalAttacks=n())

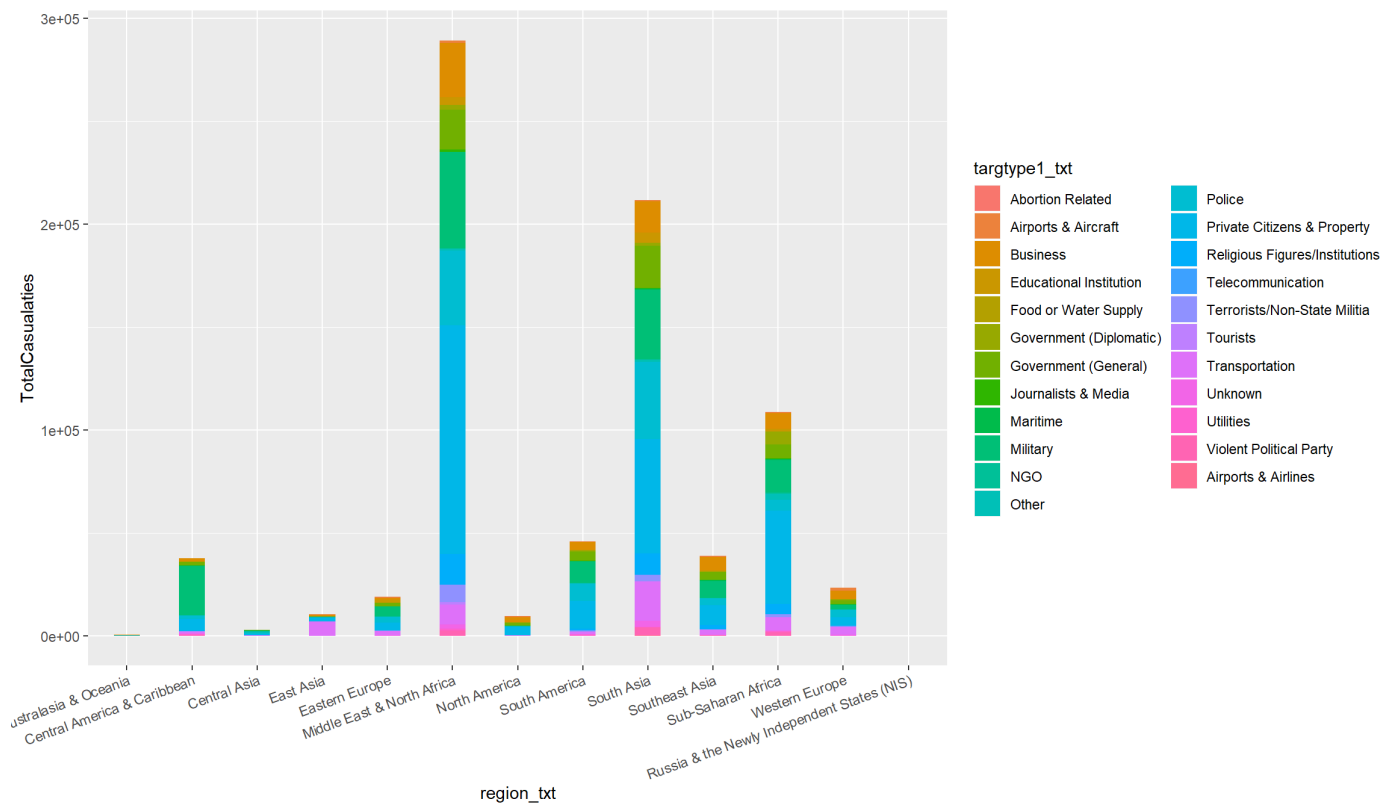
ggplot(q7b, aes(x = iyear, y = TotalAttacks, fill = country_txt, color = country_txt)) +
  theme_bw() +
  geom_line()+geom_point() + scale_x_discrete(limit = seq(1970, 2045, by=5)) +
  labs(x = "Year", y = "No of Attacks", title = "Usa Vs Russia/SovietUnion") +
  theme(legend.title = element_blank(), axis.text.x = element_text(angle = 90))
```

## Usa Vs Russia/SovietUnion



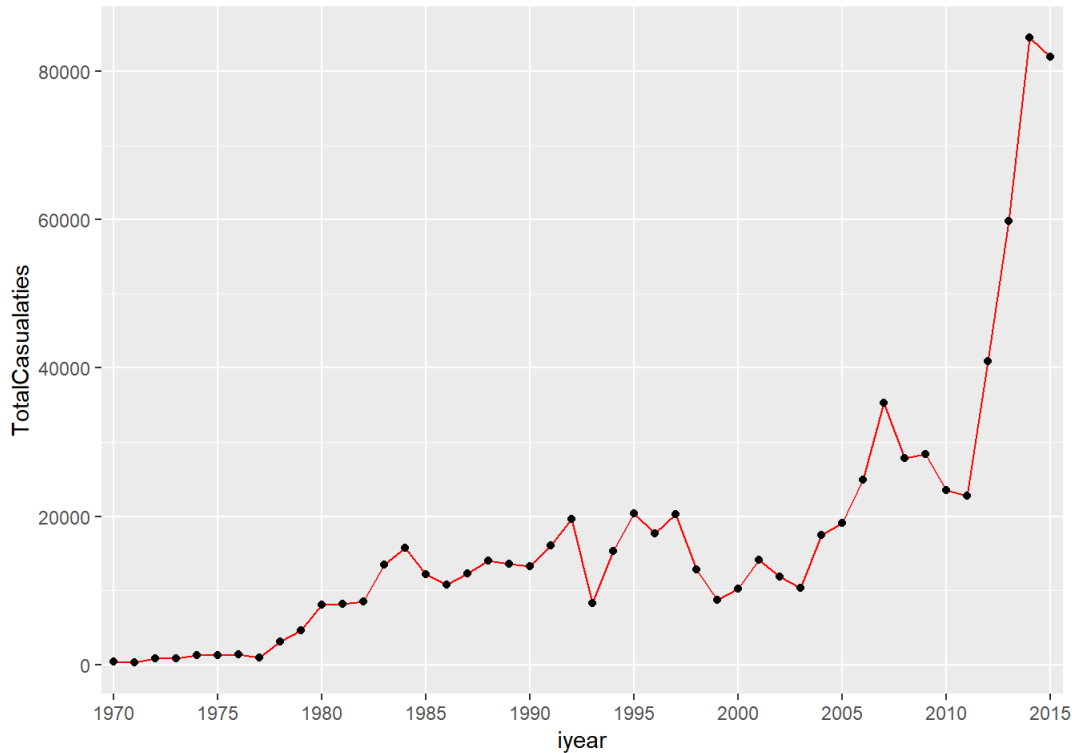
8. Where are there the most casualties?

```
q8a=q8 %>% group_by(region_txt, targtype1_txt) %>% summarise(TotalCasualties=sum(nkill, na.rm = T)+sum(nwound, na.rm = T)) %>% arrange(-TotalCasualties)
ggplot(q8a, aes(x=region_txt, y=TotalCasualties)) + geom_bar(width=.4, stat="identity", aes(fill=targtype1_txt)) +
  theme(axis.text.x = element_text(angle = 20, hjust = 1))
```



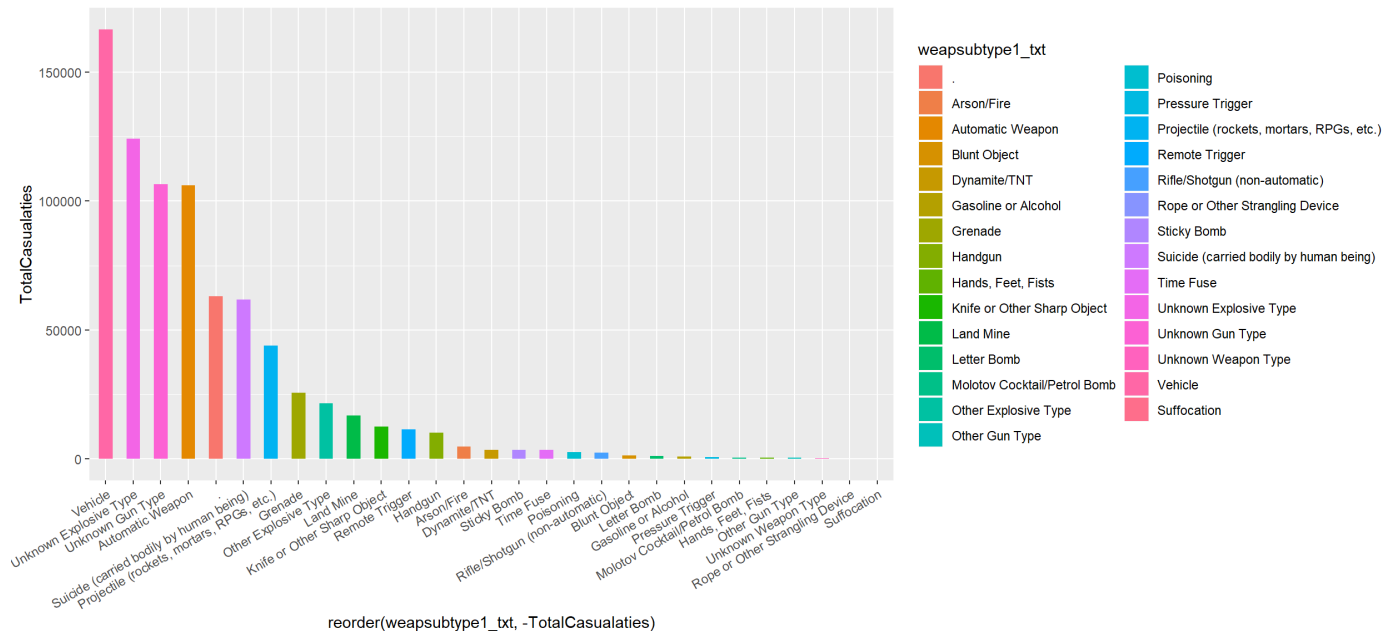
9. How have casualties evolved throughout the years?

```
q9a=q9 %>% group_by(iyear) %>% summarise(TotalCasualties=sum(nkill,na.rm = T)+sum(nwound,na.rm = T))
ggplot(q9a,aes(x=iyear,y=TotalCasualties)) + geom_line(color="red")+geom_point() +
  scale_x_discrete(limit = seq(1970,2045,by=5))
```



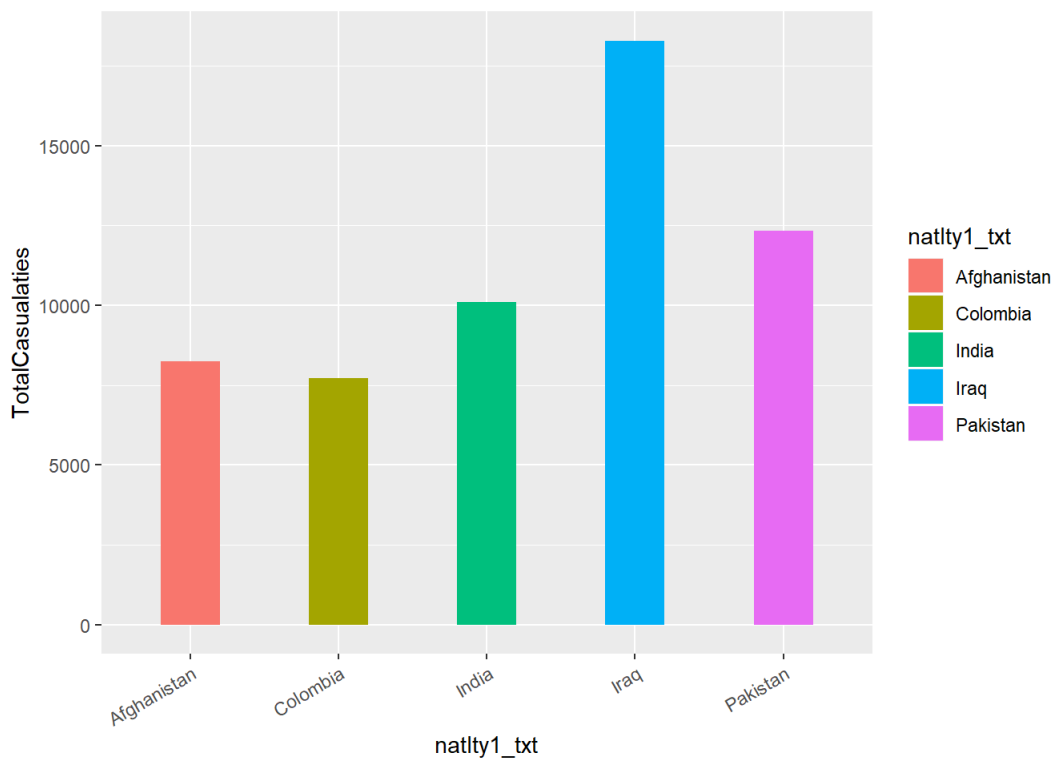
10. What are the casualties by weapon type?

```
q10a=q10 %>% group_by(weapsubtype1_txt) %>% summarise(TotalCasualties=sum(nkill,na.rm = T)+sum(nwound,na.rm = T))
ggplot(q10a,aes(x=reorder(weapsubtype1_txt,-TotalCasualties),y=TotalCasualties)) + geom_bar(width=.5,stat="identity",aes(fill=weapsubtype1_txt))+
  theme(axis.text.x = element_text(angle = 30,hjust = 1))
```



11. Are certain nationalities more targeted? If yes, which one?

```
q11a= q11 %>% group_by(natlty1_txt) %>% summarise(TotalCasualties=n()) %>% arrange(-TotalCasualties) %>% head(5)
ggplot(q11a,aes(x=natlty1_txt,y=TotalCasualties)) + geom_bar(width = .4,stat="identity",aes(fill=natlty1_txt)) +
  theme(axis.text.x = element_text(angle = 30,hjust = 1))
```



12. Are some countries better at defending themselves against terrorist attacks? If yes, which is the safest country to live

```
q12=rbind(crime1[,c("country_txt","nkill","nwound","success")],crime2[,c("country_txt","nkill","nwound","success")],crime3[,c("country_txt","nkill","nwound","success")],crime4[,c("country_txt","nkill","nwound","success")])
q12a=q12 %>% filter(nkill==0) %>% group_by(country_txt) %>% summarise(TotalHarmlessAttacks=n()) %>% arrange(-TotalHarmlessAttacks) %>% head(10)
a=ggplot(q12a,aes(x=country_txt,y=TotalHarmlessAttacks)) + geom_bar(width=.5,stat="identity",aes(fill=country_txt))
q12b=q12 %>% filter(nkill>1,nwound>1) %>% group_by(country_txt) %>% summarise(TotalAttacks=n()) %>% arrange(-TotalAttacks) %>% head(10)
b=ggplot(q12b,aes(x=country_txt,y=TotalAttacks)) + geom_bar(width=.5,stat="identity",aes(fill=country_txt))

q12_2 = q12 %>%group_by(country_txt) %>%
  summarise(attack= n() , defend = sum(success == 0,na.rm = T) ) %>%
  arrange(attack,defend)
q12_2$per = round((q12_2$defend/q12_2$attack)*100,1)
d =q12_2 %>% filter(attack>10) %>% arrange(-per)%>%head(15)

c=ggplot(d ,aes(x = country_txt , y = per)) + geom_bar(stat = 'identity' , aes(fill = country_txt)) +
  theme(axis.text.x = element_text(angle = 20,hjust = 1)) +
  geom_text(data = d, aes(x = country_txt, y = per, label = per),position = position_stack(vjust = .5))

q12_3 <- q12%>%group_by(country_txt)%>%summarise(`attacktype1_txt`=round(sum(sum(nkill,na.rm = T),sum(nwound,na.rm =T)))) %>%
  arrange(-`attacktype1_txt`) %>%tail(10) %>%View()

grid.arrange(a,b,c)
```



